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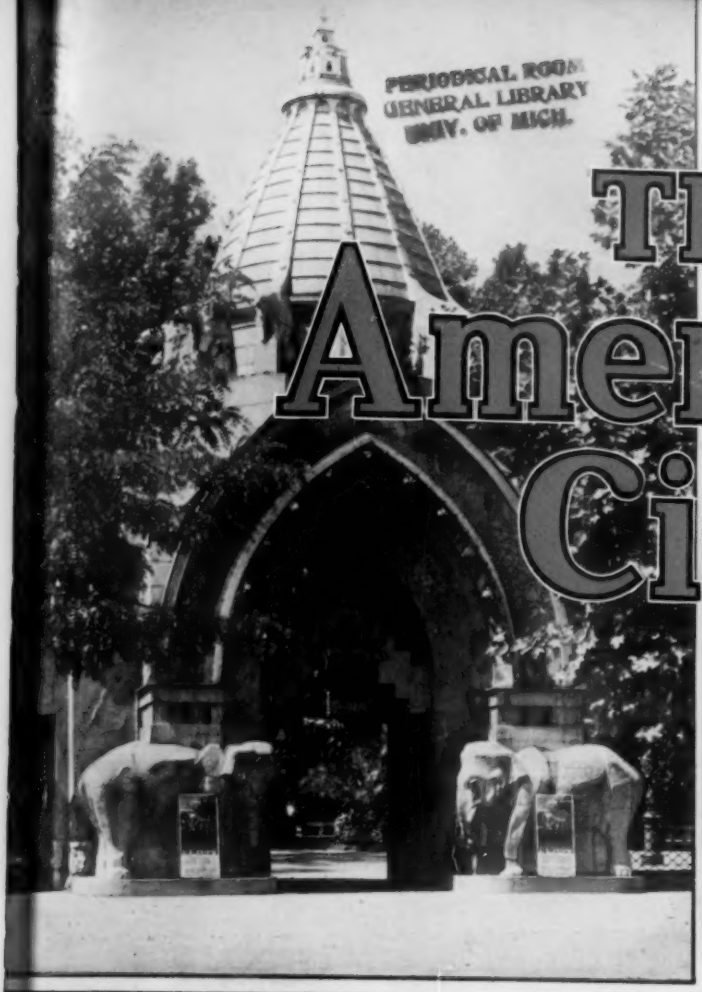
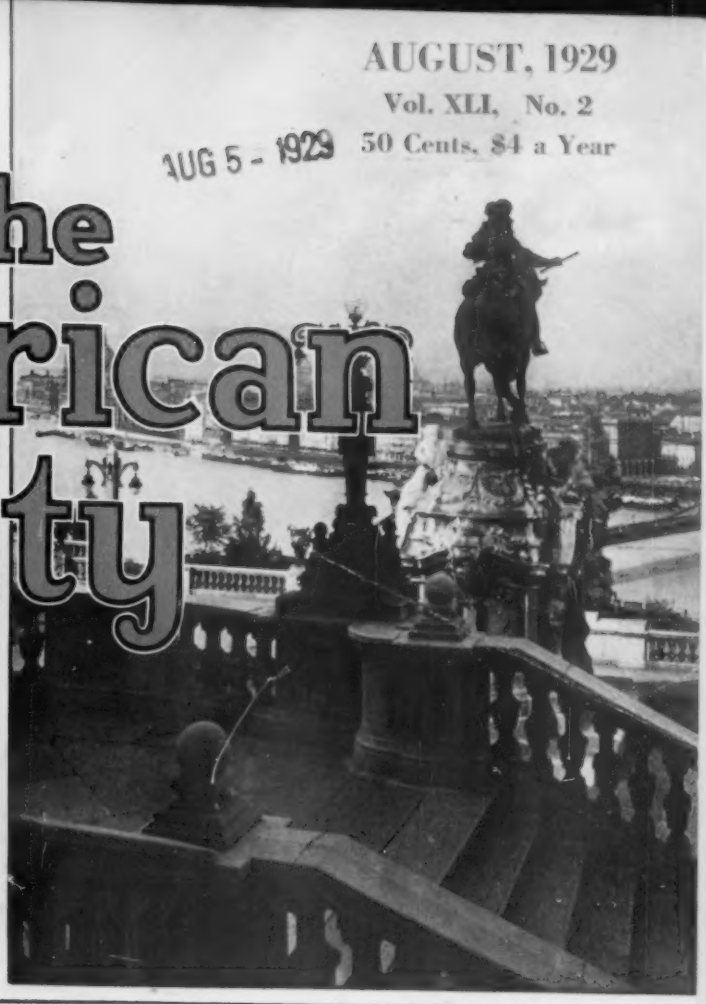
The American City





Three Typical Scenes in Budapest

(See page 89)

durable . . . shock-absorbing
AIRPORT RUNWAYS
. . . not too costly

An application of TEXACO Asphalt at Amarillo Municipal Airport, Amarillo, Texas, before being covered

Covering TEXACO Asphalt application with stone chips

Rolling stone chips into the TEXACO Asphalt

Transportation by air cannot be seasonal . . . It must be maintained the year around . . . in all sorts of weather.

The airports of the country, therefore, must be equipped to serve with unvarying efficiency twelve months in the year.

Among the most indispensable features of the modern airport are well constructed runways. For the sake of efficiency and safety, these runways must retain their smooth, waterproof and resilient surfaces, no matter how severe the elements.

The Amarillo Municipal Airport, Amarillo, Texas, has lately completed a type of runway surface which promises this year-around service. On a six-inch gravel base, three applications of TEXACO Asphalt were made. Each of the first two applications was covered with stone, then rolled; the third application was covered with coarse sand to obtain a smooth surface.

Such airport runway surfaces as those at the Amarillo field are unaffected by temperature extremes. They are thoroughly waterproof and their shock-absorbing quality prolongs their own lives, as well as those of the planes which they serve.

Sixteen-passenger, three-motor Fokker plane, loading at Amarillo Municipal Airport, Amarillo, Texas

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The American City

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In addition to what is published in THE AMERICAN CITY, other material, including articles, lists and bibliographies on a wide variety of municipal and civic subjects, appears each year in

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Edition of 1929, 786 pages

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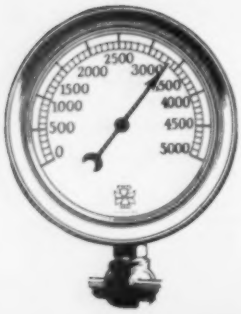
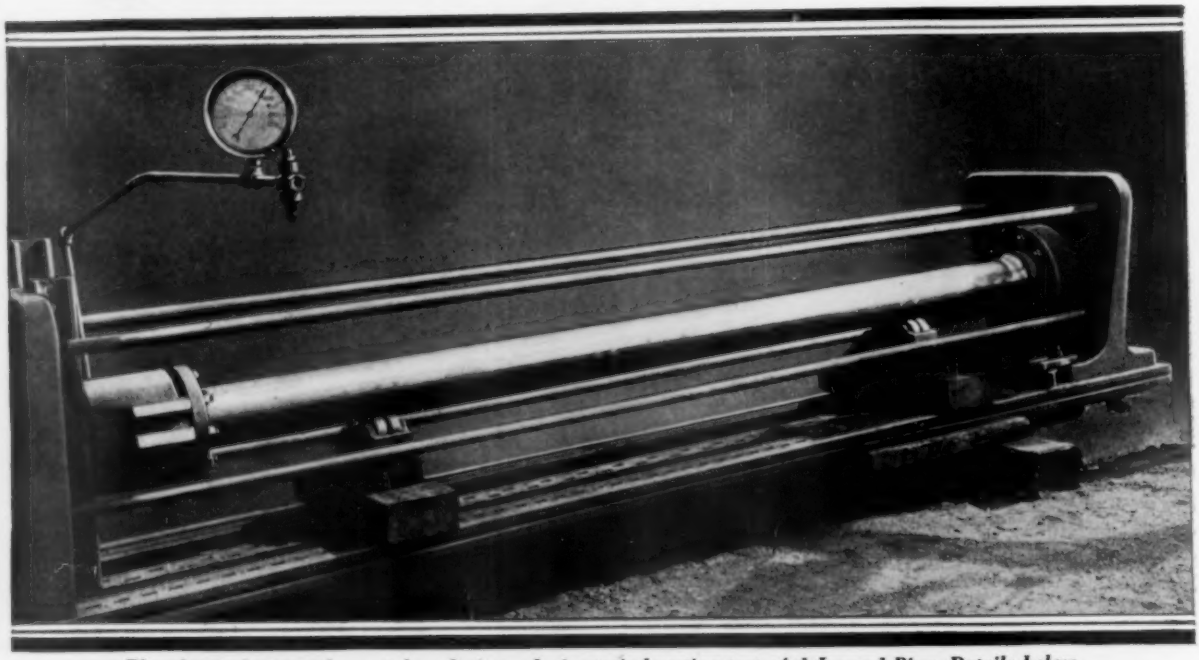


Dramatic Evidence
of the superior strength of deLavaud pipe



The above photograph was taken during a hydrostatic bursting test of deLavaud Pipe. Details below.

3,350 lbs. per square inch was the pressure required to burst the 6-inch deLavaud Pipe shown above. This pipe was selected at random from stock, placed in a special test press and submitted to tremendous water pressure from a force pump. Gauge readings were accurately checked.

When the pressure was first applied, the gauge needle moved up quickly to the 2,000 lb. mark. Thereafter it advanced more slowly to a reading of 3,350 lbs. per square inch—*a pressure reading fully 25% higher than could possibly be obtained with pit cast pipe designed for the same service.*

The remarkable strength of deLavaud Pipe is due to the dense, close grained structure of the metal, and to the metal's freedom from slag and blow holes. deLavaud Pipe is made by pouring molten iron into a rapidly revolving cylindrical mould. Centrifugal force holds metal against sides of mould, driving out impurities with a pressure resulting from a force *40 times greater than gravity.*

Also, the action of water-cooled deLavaud mould and the subsequent annealing further improve the physical properties and the microstructure of the metal. Let us send you the deLavaud handbook and all the facts about deLavaud Pipe.

Cast iron pipe made by this Company bears the "Q-check" trademark of The Cast Iron Pipe Research Association.

United States Pipe and Foundry Co., Burlington, New Jersey

Sales Offices: New York, Philadelphia, Pittsburgh, Cleveland, Buffalo, Chicago, Dallas, Birmingham, Kansas City, Minneapolis, Seattle, San Francisco, Los Angeles

Items and Abstracts *for* MAYORS AND CITY MANAGERS

Government by Wisecrack

MAYOR WALKER has long had a weakness for wisecracks, but they have only recently taken on a quasi-official status. "The popular sport of the day," says a review in *Municipal Reference Library Notes*, "appears to be that of making short, pointed, double-edged witticisms." But they must be good. The writer of the review speaks feelingly of the tragedy only too likely to result from experimenting with those which are not so good. It appears that a collection of several thousand of the "better sayings of this kind" has been brought together in a little volume published by Putnam's which "city employees who act as public speakers, after-dinner talkers or radio broadcasters may find useful."

The witticisms have been carefully grouped in order to be of the largest service. Controller Berry, for example, has only to refer to the heading "Bill Collectors" to make the business of tax-gathering painless. There are chapters on "Automobiles: Accidents," "Automobiles: Parking," and "Automobiles: Traffic and Traffic Policemen," which are specially to be commended to Commissioner Whalen's belted men. The one about the absent-minded traffic cop who sent his girl a telegram "Hope you are enjoying vacation stop shut up go love Ed" must have been inserted more as a matter of record than of admonition. The booklet contains a wide variety of wheezes about "Brides and Bridegrooms" which should be kept on file in the Marriage License Bureau.

In order to introduce so valuable a book to the army of municipal employees generally, Mayor Walker himself ought to make a speech from the steps of City Hall by way of example. It would run something like this (see Blondes, Dancing, Debt, Diplomacy, Early Birds, Fame, Government, Poker, Police and Politics):

"Commissioner Whalen, members of the hush-hush squad, ladies and gentlemen: I am sorry to be late, but remember that it's the early bird that has to get his own breakfast. Early to bed and early to rise, and you'll miss seeing a good deal that doesn't go on in the daytime. Anyhow, you didn't expect me to be here any earlier. After all, punctuality is nothing but the art of guessing how late the other fellow is going to be.

"I want to say just a word to your men, Grover. People are a bit too neighborly in Chicago. They all live within gunshot of each other. You must order things differently here. Don't let it ever be said of this city that crime, too, has its permanent wave. People who live in glass houses shouldn't throw parties. Hear no evil, see no evil, speak no evil, Grover, and you'll never be a success at a tea party.

"We are about to enter a great municipal campaign. Politics makes strange bedfellows, but they soon get accustomed to the same bunk. It has been said that I am hesitant about running again, but I would remind you that the politician will find an excuse to get out of anything except office. You can't fool all the people all of the time, but, speaking for myself, I would be quite content with a majority. I thank you."

—From *The New York Times*, July 15, 1929.

Wisecrackery or Statesmanship?

New York's Mayor Has Both Types of Ability. By Which Do He and Other Mayors Perfer History to Judge Them?

(Two Editorials from *New York Times*)

The Mayor He Might Be

MEN are often judged by the wrong qualities. Sometimes they do not know their own strong points. It is an old story that geniuses reproach their own age for having picked out their really inferior work to praise. Goethe thought more of his science than he did of his poetry. The artist Kneller was sure that he would have been a great military commander because he so loved the smell of powder. It is certain that contemporary appreciation of public men often seizes upon traits in them which are purely incidental or secondary, while overlooking the truly important, sterling stuff. If, for example, the people of this city were asked to sum up the official character of Mayor Walker, nine out of ten of them would dwell upon his great personal charm, his talent for friendship, his broad sympathies embracing all sorts and conditions of men, his ready wit, his brilliance as a speaker at every kind of gathering or function, his skill as a politician, his gift for winning support from the most unlikely quarters. These estimates of the Mayor are true enough, but they ignore certain things in him which he usually keeps in the background, but which mark him out as a man naturally fitted for a great executive position.

Mr. Walker has a singularly alert intelligence. He is quick not only in epigram and repartee but in grasp of the essentials of a governmental problem laid before him. He often astonishes colleagues and observers by the rapidity with which he winds his way into the heart of any subject concerning the city. Probably no man in New York better understands its public business. What has been done Mr. Walker has at the end of his fingers, what should be done at the end of his tongue. His versatility, his ingenuity in finding ways out of difficulties, his swift dispatch of affairs demanding his attention, his adroitness in dealing with opposition and in composing controversies—all these are high qualities in a public servant and should equip him for a most useful career.

What has been lacking during the years of the Walker Mayoralty has been the steady application of uncommon abilities to the uncommonly complicated and arduous work of the office. The city has stood by and seen, as it were, great powers going to waste. Citizens have not so much minded Mr. Walker's frequent absences, or his obvious delight in the social side of life, but they have regretted that he has not devoted himself more exclusively and sternly to the big job placed in his hands. They believe that if he only would wreak himself upon it he would make things march more rapidly and successfully than they have done. They feel, besides, that he could have set an example to all the departments of the City Government, radiating through them from his own active personality an energy which would have greatly heightened their morale. And they are today trusting the larger hope, even if rather faintly, that his next term of office, if he receives it, will be utilized to build for himself in the affection and remembrance of this city a monument as not only a gifted and attractive but a hard-working Mayor.

Everybody who knows Mr. Walker well is confident that he has in him the makings of a remarkable Chief Magistrate of this city. The Mayor that he has been gives only a hint of the Mayor that he might be. If he cherishes political ambition, he should be able to see that the way to fill and round it is to take the day's duties as they come and pour into them the unusual powers which he undoubtedly possesses.

—From *The New York Times*, July 20, 1929.

When *one* water system is better than *many*

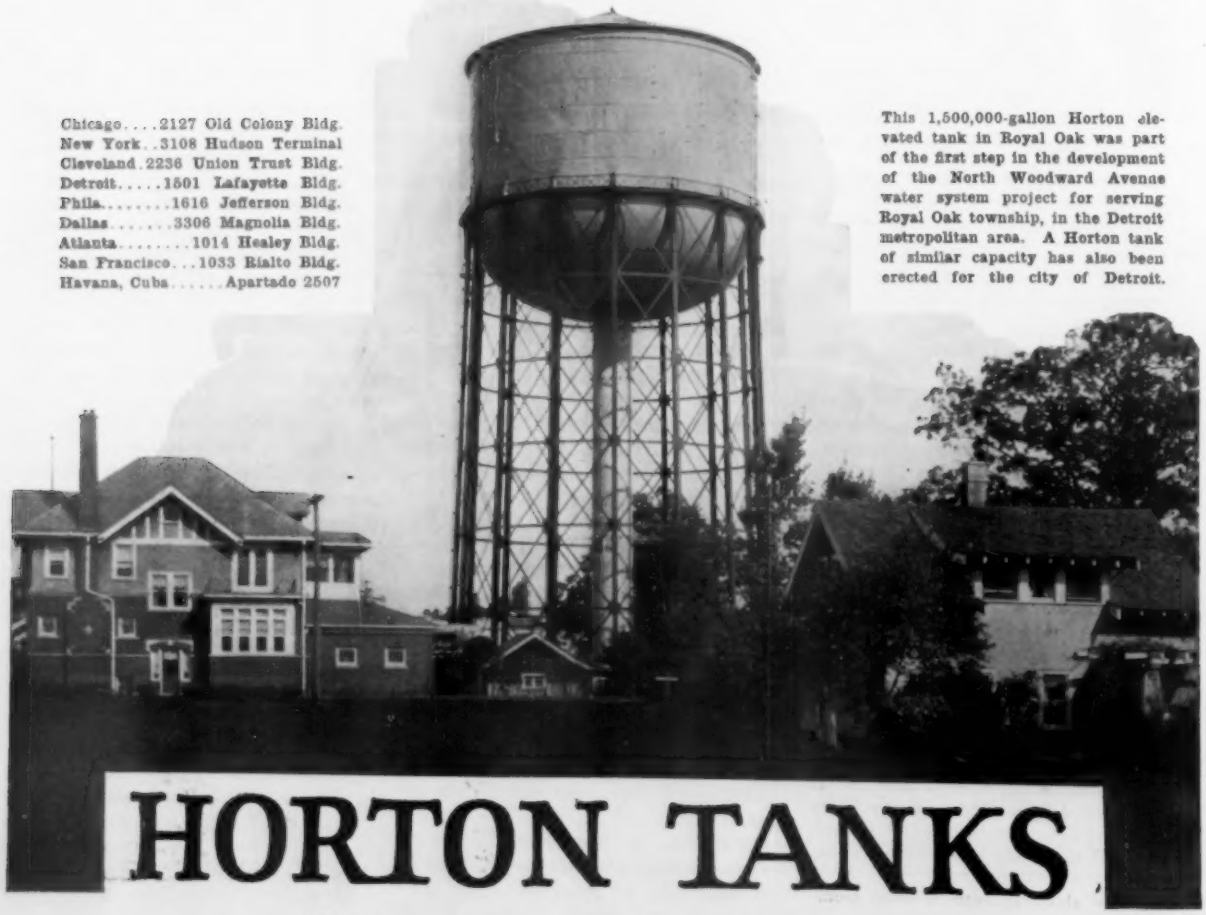
MUNICIPAL executives in touch with the general water supply project which eventually will serve the northern portion of the Detroit metropolitan area are convinced that a considerable saving to the taxpayers will be shown during the years to come. Instead of installing numerous small systems from local supplies built piecemeal, subject to rapid deterioration and poorly adapted to changing conditions, it seems much more economical for the individual communities to cooperate in one big development, gradually building it up to meet the needs of the district.

Large-capacity elevated tanks are important factors in the successful operation of such a system. They provide adequate storage for peak demands, they maintain uniform high pressure, they reduce operating costs by permitting uniform pumping rates, and they allow for smaller mains. Numerous studies of individual installations have shown that the proper use of elevated storage produces the minimum first cost and operating cost.

If you are located in a territory where such a major development is feasible our representatives would be glad to give you cost estimates and the experience of other cities with Horton elevated tanks.

CHICAGO BRIDGE & IRON WORKS

Chicago....2127 Old Colony Bldg.
New York..3108 Hudson Terminal
Cleveland..2236 Union Trust Bldg.
Detroit.....1501 Lafayette Bldg.
Phila.....1616 Jefferson Bldg.
Dallas.....3306 Magnolia Bldg.
Atlanta.....1014 Healey Bldg.
San Francisco...1033 Rialto Bldg.
Havana, Cuba.....Apartado 2507



This 1,500,000-gallon Horton elevated tank in Royal Oak was part of the first step in the development of the North Woodward Avenue water system project for serving Royal Oak township, in the Detroit metropolitan area. A Horton tank of similar capacity has also been erected for the city of Detroit.

HORTON TANKS

During August we hope you will remember to mention THE AMERICAN CITY

AC8Gray

Items and Abstracts on WATER AND SEWERAGE

Caring for the Power Equipment of a Water Department

THE construction and maintenance of pipe lines necessary to supply with water a large metropolitan community greatly depends for success upon the use of the correct type of machine for each particular kind of work to be done. The Power Machine Bureau of the Department of Water-Supply, Detroit, has for its most important duty the care and operation of practically all of the machinery employed in pipe-line construction, and has in the machine shop, which is located at Buena Vista Avenue and the Detroit Terminal Railway, the equipment necessary to service and repair all the machinery under its supervision.

The building occupied by the Power Machine Department is monitor roofed, 90 feet wide and 200 feet long, with a 30-foot center aisle served by a 10-ton traveling crane. Included in the equipment is a blacksmith shop in which is a power hammer, a combination power punch and shears, two forges, an oil furnace, an electric grinding wheel, and a complete line of tools and accessories used in that grade of work. In the blacksmith shop are made such auxiliary equipment as the bull points used in air hammers for breaking pavement, plow points and rooters for digging buckets, calking tools, chisels, picks, star drills, chains, hooks, etc.

The department is also equipped with a machine shop wherein are a Monarch lathe, a Putnam lathe, an American lathe, a radial drill press, two milling machines, a Newton power saw, a Kelly 24-inch shaper, one grinding wheel, one tool grinder, and a Bury stationary air-compressor. With this machinery practically every kind of repair part can be made and serviced.

A sheet metal department and a carpenter shop also play important parts in the duties assigned the Power Machine Bureau, and both are continually employed in maintaining machines and buildings.

These various divisions of the Bureau, such as the blacksmith, carpenter, tinsmith and machine shops, are constantly doing new and repair work for other departments of the city, and the mechanics are frequently called upon to repair and service the construction equipment and machinery of such branches as the D. P. W. Sewer, Municipal Waste and Construction Departments, Department of Street Railways and Detroit Fire Department, etc.

Until recently the power machine building was but 90 feet wide by 120 feet long, but because of the great number of machines which of necessity had to be overhauled periodically, construction was begun on an 80-foot addition, which is completed. The new building program was begun about August 1, 1927, and at the present time the additional space is permitting work to be done on a number of machines that otherwise would have been stored in the sheds until room could be made for them in the shop.

The various types of machines used in conjunction with the Construction and Maintenance Bureau are seven Buckeye and three Austin trenching machines capable of digging trenches from 24 to 72 inches wide and to a depth of 18 feet. Twelve Buckeye boom backfillers and one Fordson tractor with backfiller attachment are used to refill trenches. Two Osgood tractor cranes, one Industrial tractor crane, one Bucyrus steam crane, one Buckeye utility backfiller crane, two Austin draglines and one Orton Type V gasoline crane, carry the burden of raising, moving and lowering pipe and heavy gates. These cranes are also used for digging trenches, loading trucks and backfilling when equipped with clam-shell buckets.

Six concrete mixers of various types are used for preparing material used in building wells and replacing broken pavement. A Delco lighting outfit is available for night and emergency work, and two Acme stone crushers are also used for preparing materials used in replacing damaged pavement.

Fifteen air-compressors are kept in constant operation to supply power for the air-driven tools such as chipping hammers, spade guns, calking hammers, demolition tools, sand rammers, drills, etc., which equipment is employed in calking joints, breaking concrete and asphalt surfaces, digging and chipping. Three Buckeye concrete breakers are also used to remove pavement from streets where new mains are to be laid or where old pipe is to be replaced or repaired.

Three centrifugal pumps of various sizes, all of which were built in the power machine shop, forty-four trench pumps, a portable steam boiler, two pulsometers used for pumping water, and two Fruehauf trailers used for hauling slow-moving and cumbersome machines to and from the various construction jobs, complete the equipment.

As rapidly as the city grows in size and population, it is necessary to increase the facilities for service, and of the foregoing equipment one Buckeye boom backfiller, one Buckeye ditcher, six air-compressors, one Industrial tractor crane, and one Osgood tractor crane, were purchased during the year 1927.

Collecting Water-Works Bills

On November 1, 1927, the Collection Bureau of the Department of Water-Supply, Detroit, was organized as a separate bureau, being formerly a unit of the billing bureau.

The personnel of the bureau is as follows: (1) head water collection clerk; (2) senior clerks; (3) junior clerks; (2) junior typists; (7) delinquent-bill collectors; (2) meter readers.

The delinquents are taken from the customers' ledger account in the Billing Bureau, and yellow delinquent bills are typed in triplicate from the ledger cards the first of the month, following the due date of the original bill by districts and routes. The total amounts billed in number and money are kept daily. The first copy of the bill is mailed to the premises, the second is for the collector's file, and the third is for the office file. The stub ends of the bills that have been paid are received daily from the Billing Bureau after being sorted. The second or collector's copy of the delinquent bill is removed, but the third or office copy is stamped "Paid" with date of payment, and held for further reference until that district is billed again.

If the delinquent bill is not paid within about ten days, the collector's copy is removed from the file and given to the collector to collect the amount of the bill or shut off the water, for which a charge of not less than $2 is made, unless some reasonable excuse is given or permission by the head of the Bureau after an explanation.

If the delinquent bill is not paid within about ten days, the collector's copy of bill is removed and retained by the collector, and a receipt is given by stamping the bill "Paid," with date and name of the collector. The stub end of the bill together with the cash, check, or money order that was received on the premises, or a notation that the water was shut off, is returned the following day for file or settlement, and turned over to the Cashier's Bureau.

The collectors turn in a report of the amount of work performed daily. A record is kept of the total amount collected by each collector; also the number of shut-offs made and premises notified, for a daily and monthly report.

When the water has been shut off at the meter and sealed, or at the stop-box, a card is made out for the file; also an entry is made in the shut-off book, of the address, date and where shut; also the name of the collector.

When the bill has been paid and the water is to be let on, the card is stamped "Paid" and given to the collector, who turns on the water and enters the date and where let on, returning the card the following day. An entry is then made in the shut-off book of the date, giving the necessary information.

This bureau also has the collection of delinquent inspection fees, iron pipe assessments, material and labor bills, and all delinquent bills of the department other than those collected by the City Treasurer.

Water-Meter Records

Are you following the remarkable series of articles on meter and service record forms and billing methods running in THE AMERICAN CITY? One article a month in addition to other valuable water-works operation material.

90% Reduction in ODOR TRAVEL by Chlorination

AT TULARE, CAL. SEWAGE FARM

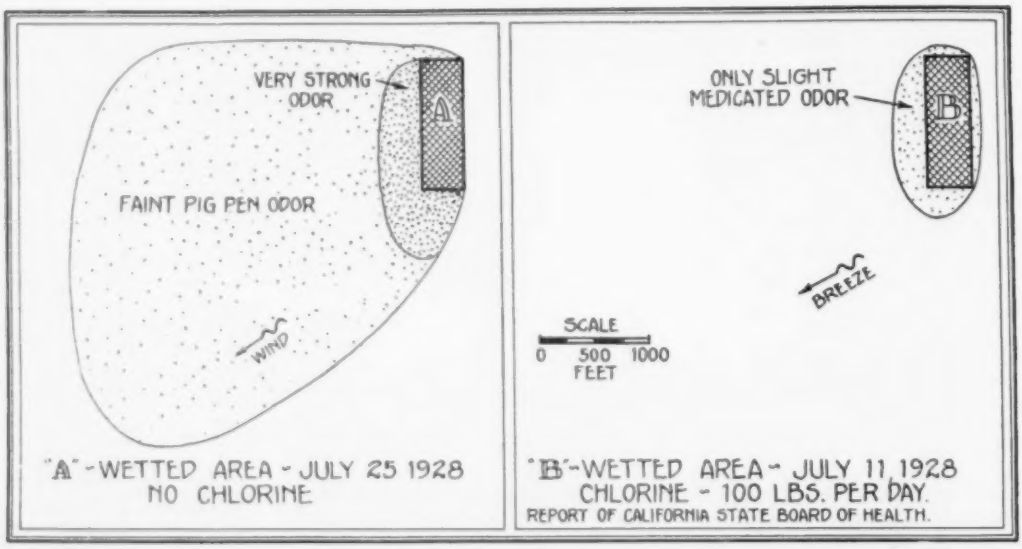


DIAGRAM of Sewage Farm at Tulare, Cal. showing wetted areas and the extent of odor travel with and without chlorination of putrescible peach cannery works. Similar results were obtained chlorinating creamery wastes.

Will You be Ready to Control Sewage Odors When Warm Weather Comes?

WRITE FOR OUR TECHNICAL BULLETIN No. 96

"The only safe water is a sterilized water"

WALLACE & TIERNAN

COMPANY, INCORPORATED

Manufacturers of Chlorine Control Apparatus

NEWARK · NEW JERSEY

NEW YORK CHICAGO KNOXVILLE SAN FRANCISCO MINNEAPOLIS PITTSBURGH DALLAS KANSAS CITY
LOS ANGELES SEATTLE ST. LOUIS BUFFALO INDIANAPOLIS DETROIT BOSTON JACKSONVILLE
CHATTANOOGA CHARLOTTE OKLAHOMA CITY PHILADELPHIA SPOKANE OGDEN
WALLACE & TIERNAN, LTD., TORONTO, CANADA WALLACE & TIERNAN, LTD., LONDON, ENGLAND

S-3

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Water Commissioner
Kearney, Nebr.
(Appointed 1923)

HIRAM E. HILTS
Acting Mgr., Water Works
Denver, Colo.
(Appointed 1929)

FRED E. WILLIAMS
Supt., Water Works
Ogden, Utah
(Appointed 1928)

J. C. SCALLIN
Supt., Water Works
Mitchell, S. D.
(Appointed 1927)

CLARENCE M. RAINEY
Supt., Water Works
Pocatello, Idaho
(Appointed 1921)

WHO'S WHO IN WATER SUPPLY

Installment No. 20—Portraits of Water-Works Officials of 14 Cities in Six Western States

SIG RAVNOS
Supt., Water Works
Mandan, N. D.
(Appointed 1928)

RHEA REES
Supt., Water Works
Sioux Falls, S. D.
(Appointed 1926)

RALPH N. TRACY
Water Commissioner
Fairbury, Nebraska
(Appointed 1927)

CLARK NEWELL
Supt., Water Works
Provo, Utah
(Appointed 1925)

WILLIAM P. HUGHES
Supt., Water Department
Lewiston, Idaho
(Appointed 1923)

JOHN H. GRIFFIN
Supt., Water Works
Trinidad, Colo.
(Appointed 1925)

WILLIAM H. EWER
Supt., Water Works
Logan, Utah
(Appointed 1920)

JOHN J. DeROLF
Water Commissioner
North Platte, Nebr.
(Appointed 1923)

MILTON SEAMAN
Supt., Water Department
Greeley, Colo.
(Appointed 1913)

TRUSCON HIGHWAYS

MORE MILEAGE FROM YOUR HIGHWAY FUNDS

TRUSCON WELDED STEEL FABRIC in flat sheets or rolls. Accurate reinforcement for roads.

TRUSCON STEEL ROAD FORMS for accurate and rapid construction of concrete roads.

TRUSCON CONTRACTION JOINTS and Air Cushion Expansion Joints provide a definite plane for expansion and contraction.

TRUSCON CURB BARS for reinforcing concrete curbs and protecting them from abrasion.

RIB BARS for reinforcing concrete. The bars with a positive grip.

The building of permanent paved highways enables you to build more miles of roads. Public funds ordinarily required for maintenance are released to be applied on new construction. The concrete road properly reinforced is an investment that proves its economy in reduced maintenance, longer life and added mileage. Truscon furnishes a complete line of Steel Products for reinforcing concrete highways and delivers them promptly all in the same carload.

TRUSCON PRODUCTS FOR REINFORCING ROADS AND PAVEMENTS

TRUSCON STEEL COMPANY, YOUNGSTOWN, OHIO

Highway Division

Trussed Concrete Steel Company of Canada, Limited, Walkerville, Ont.

Warehouses and Offices in Principal Cities

One Size of Brick Reinstated as Standard

BECAUSE of the increased demand for an eliminated size of paving brick, the Permanent Committee for Simplified Practice Recommendation No. 1 on Vitrified Paving Brick has reinstated the Dunn wire-cut lug brick measuring 3 x 3½ x 8½ inches as a standard type. This size brick was eliminated from the recognized standard sizes on March 20, 1925, but the shipments for this size during the last three years have gradually increased until today they represent 14.5 per cent of the total based upon the survey of the industry in 1928. By the inclusion of the size in the simplification program, the Division of Simplified Practice, U. S. Department of Commerce, has stated that the degree of adherence to this recommendation has increased from 70.1 to 84.6 per cent. There are now six standards or recognized sizes of vitrified paving brick.

Paving brick simplification was one of the initial projects developed by industry under the cooperation of the Department of Commerce. Much of the success attained by the program has been due to the support it has received from the National Paving Brick Manufacturers Association, according to the Division of Simplified Practice.

Oil as a Gravel Saver

THE necessity for conservation of material in road construction becomes more apparent every day in our road building program. Gravel pits that ten years ago appeared to have an unlimited supply have, in many cases, now been worked out or abandoned. Unfortunately, the major portion of this material has blown into the fields, a total loss. Realizing the importance of the protection of the surface of gravel roads, the unjustifiable waste of material and the desirability of increasing the safety of highways, the Ontario Department of Highways commenced the application of a road oil dust layer, according to R. M. Smith, Deputy Minister of Highways, in his paper presented before the Seventh Asphalt Paving Conference.

The practice in Ontario is to build gravel roads approximately 30 feet wide, graveling from shoulder to shoulder, keeping the crown as flat as possible. A gravel float of 1½ inches is maintained, this depth providing sufficient loose material to permit dragging and manipulating without matting.

The important points in connection with the application of road oils are, first, that the proper amount be applied. One-quarter Imperial gallon in two applications is recommended, but generally the quantity must be decided by the engineer, dependent upon the class of gravel road. The next item is the class of oil, a low-viscosity, non-volatile and non-asphaltic type giving the best results, the idea being to use an oil that will stay moist as long as possible.

Highway engineers can justify the use of road oil, the cost of application being insignificant when one considers the benefit. In sections where gravel roads must remain for some time and where traffic is very heavy, averaging 750 vehicles per day, the application of a dust layer can be justified on account of the increased safety alone.

Items and Abstracts *for* ENGINEERING AND HIGHWAY DEPARTMENTS

Looking Toward the Future in Pan-American Highway Construction

HIGHWAY development in the Pan-American countries at the present time may be compared to the situation in the United States during the initial stages of automobile development. The total expenditure for highway improvement in the United States in 1904 amounted to $179,595,418. This expenditure has steadily increased, and the total amount paid out for highway construction in 1927 was $1,448,129,917, exclusive of expenditures by cities and towns.

Taking into consideration the many factors which should tend to expedite the growth and development of the Latin-American countries, the expenditures for highway operations in those countries may be expected to show a similar increase over a period of years. A part of the world, endowed with unusual natural resources, where the expansion of American investment has resulted in an increase of over $500,000,000 in 1928 and now totals $5,000,000,000, and where the increasing use of American engineering methods and standards are just beginning to show results, means factors that cannot be overlooked.

That highway construction is unquestionably in its infancy in Latin America is true. It is also true that Latin America is in dire need of improved transportation facilities to hasten its development of natural resources. That there is a fertile field for this development through the medium of highways is evident. The United States has one mile of highway to one square mile of territory. Latin America, which has 18 countries, has one mile of highway to 119 square miles of territory. The United States has 5.86 persons per motor vehicle. Latin America has 522.6 persons per vehicle. The area of Latin America is 9,000,000 square miles while the area of the United States is only 3,000,000 square miles. The population of Latin America is 110,000,000, while the population of the United States is 125,000,000.

The foregoing figures are evidence, first, that Latin-American highway mileage is inadequate economically for any type of topography, with the possible exception of desert land; second, that transportation by motor vehicle through lack of highways is not the economic factor that it should be in the growth of the territory; third, that automobile registration is retarded more by lack of highways than by purchasing power or population.

New Orleans Building Three New Incinerators

THREE new incinerators to cost a total of $700,000 are under construction at New Orleans and will add appreciably to that city's sanitation system. This will make a total of five plants where garbage can be readily disposed of. The plants, according to Commissioner of Public Property John Klorer, will be equipped in the most scientific manner with special provision for the prevention of any smoke nuisance.

The incinerators are conveniently distributed about the city, one of the new ones being almost ready for use. The one now nearing completion can handle 170 tons of garbage every 16 hours with no odor escaping, and its stacks are 125 feet high. It is being constructed by J. A. Petty and Sons, Inc., contractors.

Road Construction at Perth, West Australia

THE city of Perth, West Australia, has embarked upon a rather unique scheme for the development of a large tract of sand hills on the coast within the boundary limits of the city proper, which is reported in the *Australian Municipal Journal*. The large area of sand hills has been leveled and convenient access arranged by the construction of an asphalt road between the city and the ocean front at City Beach. Construction of the roadway was carried out with 3-inch water-bound macadam overlying a 6-inch consolidated gravel foundation. On this was spread one inch of coarse screenings penetrated with 40-50 penetration asphalt, using approximately ½-gallon to the square yard. The screenings so penetrated were covered with smaller screenings and rolled. The surface was then treated with a light seal coat of asphalt, using 1/10-gallon per square yard, covered with very fine chips and again rolled.

This work was carried out economically and without the use of any expensive plant. The result is reported to be highly satisfactory, as a motor road seven miles long has been obtained which it is believed will have an exceedingly long life, even allowing for the very large increase in motor and general traffic. The surface so constructed will require very little maintenance, as it may be described as a very light form of penetration roadway which is well bound with asphalt. Mexphalte, the asphalt used, is said to have an inherent advantage of being less susceptible to temperature changes than other bitumens, it retains its tough plasticity and does not so readily soften in warm weather, nor does it become glassy and brittle at winter temperatures. Thus, it preserves a waterproof, well-bonded road all the year round.

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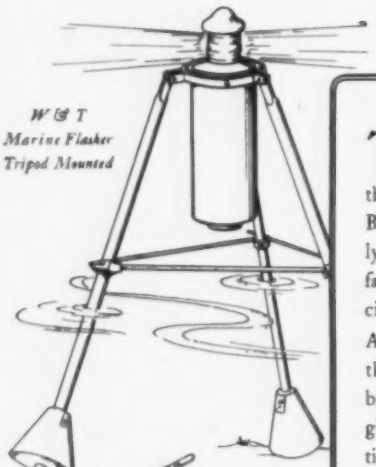
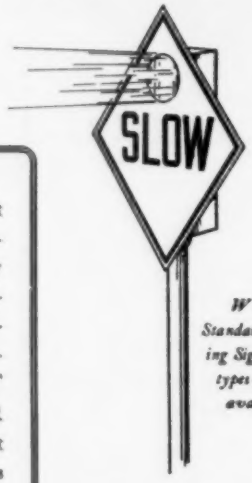


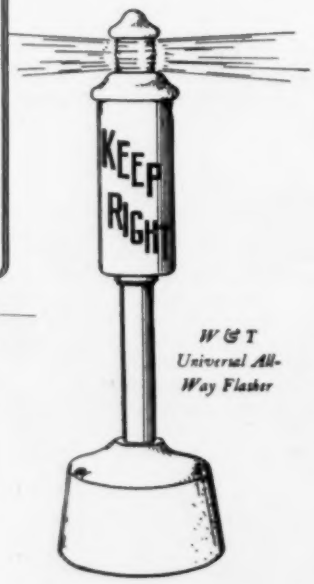
W & T Marine Flasher Tripod Mounted



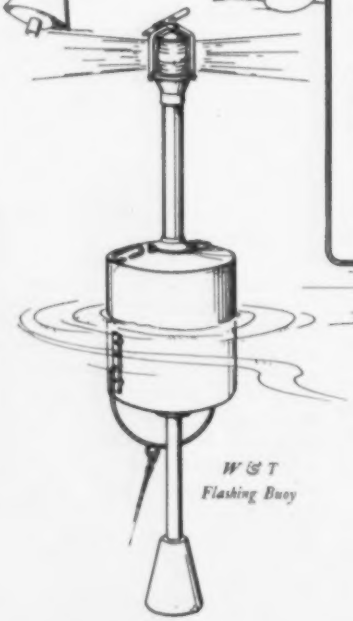
W & T Standard Flashing Signal. All types of signs available

THROUGH the dark dangers of night—piercing through rain or sleet—through snow or fog—the W & T Dry Battery Flashing Signals send their friendly warning! On land or sea they are unfailing—for they make use of a new principle in warning signals—the W & T AUTOMATIC LAMP CHANGER that automatically replaces burned out bulbs. STURDY EVEREADY Dry Batteries give six months operation without attention—making these the most dependable—but least expensive—of all flashing signals. Various types and signs are available for every traffic need—and each is equipped with "Rayflector Letters" for even greater effectiveness.

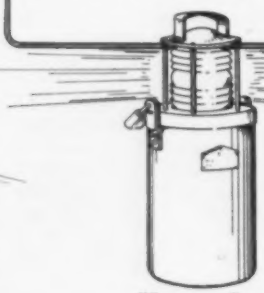
Write for interesting bulletins.



W & T Universal All-Way Flasher



W & T Flashing Buoy



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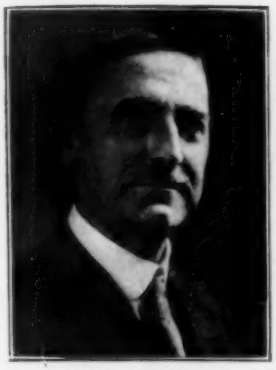


JAMES H. DINGLE
City Engr., Charleston, S. C.
(Appointed 1894)

HERBERT W. KUEFFNER
Dir. Public W'ks, Durham, N. C.
(Appointed 1914)

RAY WARREN
Highway Engr., Greensboro, N. C.
(Appointed 1925)

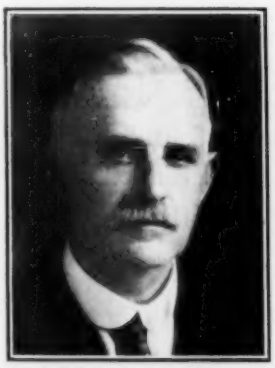
A. C. VOLK
City Engr., Bastrop, La.
(Appointed 1925)

DAVID G. ADAMS
City Engr., Spartanburg, S. C.
(Appointed 1925)

WHO'S WHO AMONG CITY ENGINEERS

Installment No. 9—Portraits of City Engineers in Three States

THOMAS D. ROSE
City Engr., Fayetteville, N. C.
(Appointed 1924)



EDWARD HAWES
City Engr., Orangeburg, S. C.
(Appointed 1906)

CAPT. ENSER W. COLE
City Engr., Salisbury, N. C.
(Appointed 1923)

RAYMOND R. EAGLE
City Engr., New Bern, N. C.
(Appointed 1912)

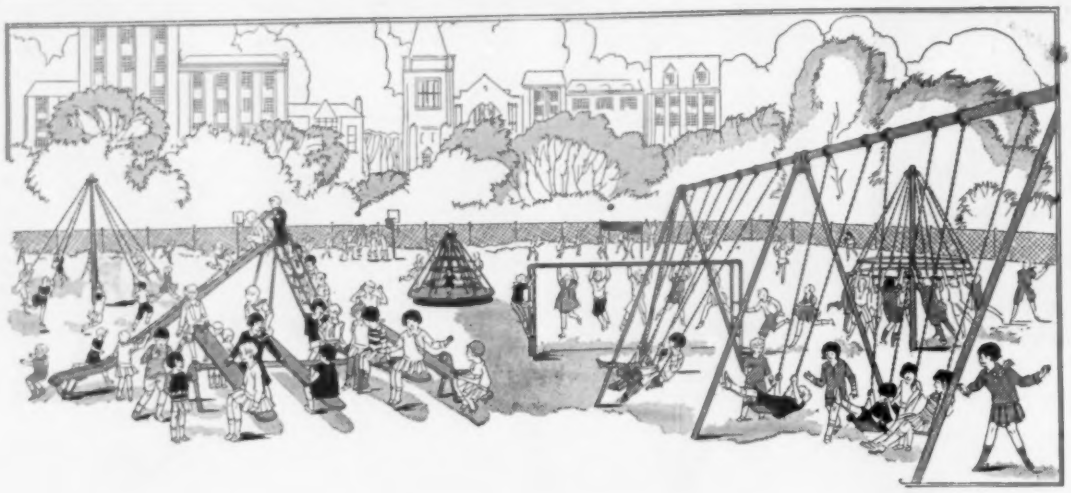
S. BROOKS RAMBO
City Engr., Greenwood, S. C.
(Appointed 1919)

ROY L. WILLIAMSON
City Engr., Raleigh, N. C.
(Appointed 1925)

N. R. KINNEY
City Engr., Lexington, N. C.
(Appointed 1922)

STANLEY H. WRIGHT
Chief Engr., Asheville, N. C.
(Appointed 1927)

DAN A. HULICK
City Engr., Greenville, S. C.
(Appointed 1925)



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KEEP the children off the streets –give them good playgrounds with plenty of fun-making, muscle-building, health-developing equipment—and yours will be a town where accidents involving children are few and far between.

For 21 years, Everwear Playground Apparatus has been recognized as the standard of quality. Built to withstand the abuse of after-hours roughnecks. Embodies every element of safety human ingenuity can devise. Playable as though the kids themselves had planned it.

Schools, institutions, cities, — the country over which have equipped their parks and playgrounds with Everwear Equipment have found it superior. Also more economical, because of its greater durability.

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Items and Abstracts *for* PARK AND PLAYGROUND DEPARTMENTS

The City Should Control Its River Frontage

"I URGE the need of municipal ownership of each and every foot of river bank within, and also for several miles beyond, the corporate limits of the city for the purpose of a river park, and for the reason that the city should have absolute control of the banks and beds of these streams for sanitary and also for flood prevention purposes; and this control she can have only by holding title to the land."

This is a quotation from the annual report of the City Planning Commission of Fort Wayne, Ind., written by Robert B. Hanna, consultant. It expresses a sentiment which is also finding expression in the reports and studies of city and regional planners in every part of the country.

"Not just a park here and there along the streams," it urges, "with river banks leading to and from them that are lined with old shacks, billboards, and rubbish heaps; not short drives here and there that connect neither with one another nor with the park system; not one bank beautified and the opposite bank uglified, but a long, uninterrupted river park . . . and where it does not appear good city planning to create a park or drive, the city need only establish a park strip and walk along the banks."

What such a park would mean to Fort Wayne has long been a brilliant picture in the minds of her citizens, who visualize it as radiating from the confluence of the three historic rivers, as extending through eight of the city's eleven districts, and conserving beauty-spots of the region. The city already controls considerable land along these streams, and it is a significant fact, Mr. Hanna points out, that the four studies—the general city plan report by Charles Mulford Robinson, the park and boulevard system study by George E. Kessler, the sewer report by Leonard Metcalf, and the flood prevention report by A. W. Grosvenor—all call for municipal control of the water frontage. It is a more significant fact that the new comprehensive city plan now being made by Bennett, Parsons and Frost, calls for acquisition by the city of even more waterfront land than did the former studies.

A Truly Splendid Record

MINNEAPOLIS has 138 parcels of park land distributed almost evenly over the nearly 60 square miles of city territory. Out of every 100 acres of that city area, 9 acres have been set aside for the use of our people, and we have 1 acre of park for every 90 inhabitants. We have 300 miles of tree-lined streets, which form shady lanes from the homes to the chain of parks, playgrounds, and parkways. The park boulevards encircle the entire city, connecting our larger park areas, which were acquired and preserved for their natural beauty before the ruthless hand of vandalism could destroy them or private ownership render them unprocurable for public purposes. Our watchword for years has been "One playground for every square mile of residential territory," and we are nearing that goal.

We have preserved for the common use of all the people for all time to come our priceless spring-fed lakes of clear water, the gems of our city, the wooded gorge of the Mississippi River as it winds its way through our community; the valleys, falls, and glens of Minnehaha Creek; and the wooded hills, dales, and meadows of Glenwood and Columbia Parks. We have transformed useless swamps into useful park lands for beauty and practical purposes.

All this was but the means towards the achievement of our aims, namely, that all people may derive real practical use and benefit from these our common properties—for outdoor life and exercise, so provided.

THEODORE WIRTH,
Superintendent of Parks, Minneapolis, Minn.

Recreation, Adequate as to Kind and Availability

ALTHOUGH the ratio of park acreage to population has been used as the simplest measure of the extent to which cities provide areas for the recreation of their people, it is by no means an accurate basis for determining this. If most of the total acreage is in one large park, if the parks are poorly distributed, or if they do not provide various types of recreation facilities, the park system may be inefficient even though the acreage is large. The efficiently *planned* park and recreation system will involve balanced relationship and well-distributed location of several types of properties, namely, children's playgrounds, neighborhood playfield parks, neighborhood parks, reservations, boulevards, and parkways.

—Bureau of Labor Statistics, Publication No. 462.

Park Policemen, Historic Spots, and Indian Lore

PARK policemen have as their primary duty, ordinarily, the protection of public property, and emergency aid to the public. But members of the Police Department of the Forest Preserve, Cook County, Ill., have an occupation far more absorbing than putting out fires, squelching vulgar and intoxicated persons, and giving directions to women and children who have strayed off the paths. They are enthusiastic allies of the antiquarian, whether geology, ethnology, or anthropology be his specific science, or whether he be a dilletante or a Boy Scout in search of evidences of ancient Indian life. For although the Indian has long vanished, the Preserve bears eloquent testimony of his former life there. Records of the Pottawatomies, Ottawas, Chippewas, Winnebagoes, and Iroquois are written in earth and stone there, as some of the recent technical papers dealing with the subjects show. Those bent upon further researches find the police eagerly interested in aiding them, and thoroughly informed on the locations of historic spots. Boy Scouts, too, find the officers friendly and fatherly advisors, and leave the district filled with historic Indian lore and romantic stories of the early settlers and the Red Men.

Echoes from the World at Play

BURLAP animals of every conceivable variety, clowns, side-show freaks, Indians, ballet dancers, gymnasts, were all represented in the big playground circus recently conducted by the Recreation Department of the Park Commission of Memphis, Tenn., and participated in by over 950 playground children, some *real, live* animals from the zoo, and other "talent," according to *Playground and Recreation*, which also reports:

The successful outcome of a back-yard contest in Cambridge, Mass., organized as a means to supplementing the public provisions for children's play.

The establishment of the Southern States championship in flycasting as the result of a tournament held in Orlando, Fla., in conjunction with the state convention of the Isaak Walton League.

The presentation at Springfield, Ill., of a pageant, "A Melody in Color," in which Negroes of that city depicted in music, dance, and verse the story of the progress of their race. The pageant was produced at the colored community center, where programs are carried on by a full-time colored director under auspices of the Springfield Playground and Recreation Commission.

The popularity of the old-time country dances held at the municipal recreation pier at St. Petersburg, Fla. These were introduced experimentally after the commercial dance hall owners had protested against the Board of Recreation's popular-priced social dances at the pier. Receipts more than pay running expenses.

Zest, Happiness and Abounding Energy

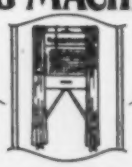
GAMES and athletics should be so organized as to secure to the full for those who take part, the high emotional values which by right belong to them. Zest, happiness, cheerfulness, and a rise in the tide of life are the natural outcome of an effectively organized plan of physical education. . . . One of the greatest needs . . . to-day is for greater emphasis upon the small-group games which can be continued by men and women after they have graduated from college or university.

J. R. YOUNG,
University of Nevada.

MUNICIPAL authorities, election officials and others interested in civic matters are invited to learn more about the advantages which voting machines will bring to your community. Address Department A11

...when communities can cut election expenses in half by using voting machines, isn't it a matter worthy of your investigation? The experience of over 2,000 cities, towns and villages demonstrates the economy and efficiency of voting machines under every condition.

AUTOMATIC VOTING MACHINE CORPORATION



JAMESTOWN NEW YORK

How Are Cities' Trust Funds Invested?

CITIES in the state of New York report a considerable variety of standard investment securities used for the investment of trust funds, according to the New York State Bureau of Municipal Information, which has recently made an inquiry into this matter. Fifteen cities invest these funds only in municipal bonds, six in first mortgages, five in savings banks, and two each in railroad bonds, land banks and approved obligations. Others report that trust funds are invested in state bonds, public-utility bonds, liberty bonds, loan associations, United States securities and city paving warrants.

1928 Gas Taxes Reached Huge Total

WITH two states—Massachusetts and New York—still without the gasoline tax in 1928, a total of $305,233,842 was collected during that year in the other 46 states and the District of Columbia. This involved the sale of 10,178,344,771 gallons of motor fuel, according to figures compiled and recently published by the Bureau of Public Roads, United States Department of Agriculture.

Only one month's taxes for the state of Illinois are included, inasmuch as the law providing for the tax in that state was held invalid on February 24, 1928. A new law has been passed in Illinois, however; and before the end of 1929 the gas tax will be in effect in all 48 states.

Comparison of the total number of vehicles registered with the total tax collected in the states in which the tax was effective throughout the year shows an average revenue of $15.09 per vehicle.

After deduction of the cost of collection, the entire net revenue was used for rural road purposes in 35 states. In the remaining 13 states and the District of Columbia a total of $18,491,754 was devoted to other purposes. In three states a portion of the collections was used for public school purposes. The January collections in Illinois were held at the disposal of the court. In five states a portion of the revenue went to cities for the construction and repair of streets, as did the entire collection in the District of Columbia. In two states small sums were deposited in the general funds of the state; in Mississippi special taxes in addition to those collected at the regular rate were used for the construction of a road-protecting sea-wall; in New Hampshire a fourth of the net collection was used for the repair of flood damage; and in one state—New Jersey—a small portion of the receipts was turned over to the State Department of Commerce and Navigation. (See also "The Cities' Share of Gasoline Taxes and Motor-Vehicle License Fees," at page 116 of THE AMERICAN CITY for March, 1929.)

Of the portion of the total revenue devoted to rural road purposes, the amount used for construction and maintenance of state highways was $211,046,591; for construction and maintenance of local roads the amount was $57,380,901; and the balance of $17,619,955 was used for payments on state and county road bonds.

Items and Abstracts *for* FINANCE AND LEGAL DEPARTMENTS

Better Law Enforcement Declared Essential to Decreasing Motor Fatalities in New Jersey

ADDITIONAL safeguards against traffic casualties provided by new laws enacted annually to meet existing conditions fail absolutely in their purpose so long as courageous enforcement is lacking, State Motor Vehicle Commissioner William L. Dill of New Jersey declared in his annual report for 1928, in the course of which he says:

"It is patent, therefore, if our highways are to be made safe, that more drastic enforcement must follow, and that the favoritism and maudlin sympathy now so prevalent must give way to the application of more severe penalties, plus that character of law enforcement which an outraged public demands."

The report shows a death toll in that state for 1928 of 1,088, or an increase of 48 over 1927. It shows that this total included 252 children or persons under the age of 15 years, a figure which represents a decrease of 31 over the corresponding figure for 1927, but which the Commissioner declares still "appalling."

Of the 2,691 licenses revoked last year, 1,952 were for drunken driving, and this was an increase of more than 300 over the preceding year.

"The ease with which liquor can be obtained and the popularity which seems to attach to its consumption," were mentioned by Mr. Dill in a discussion of the difficulties of outlawing drunken drivers based upon the findings of the report. Among the other recommendations of the report is one requiring compulsory automobile insurance or the showing of financial responsibility to meet an accident judgment.

This complete report in printed form will be available about July 1.

The Municipal Bond Market

By SANDERS SHANKS, JR.
EDITOR, *The Bond Buyer*

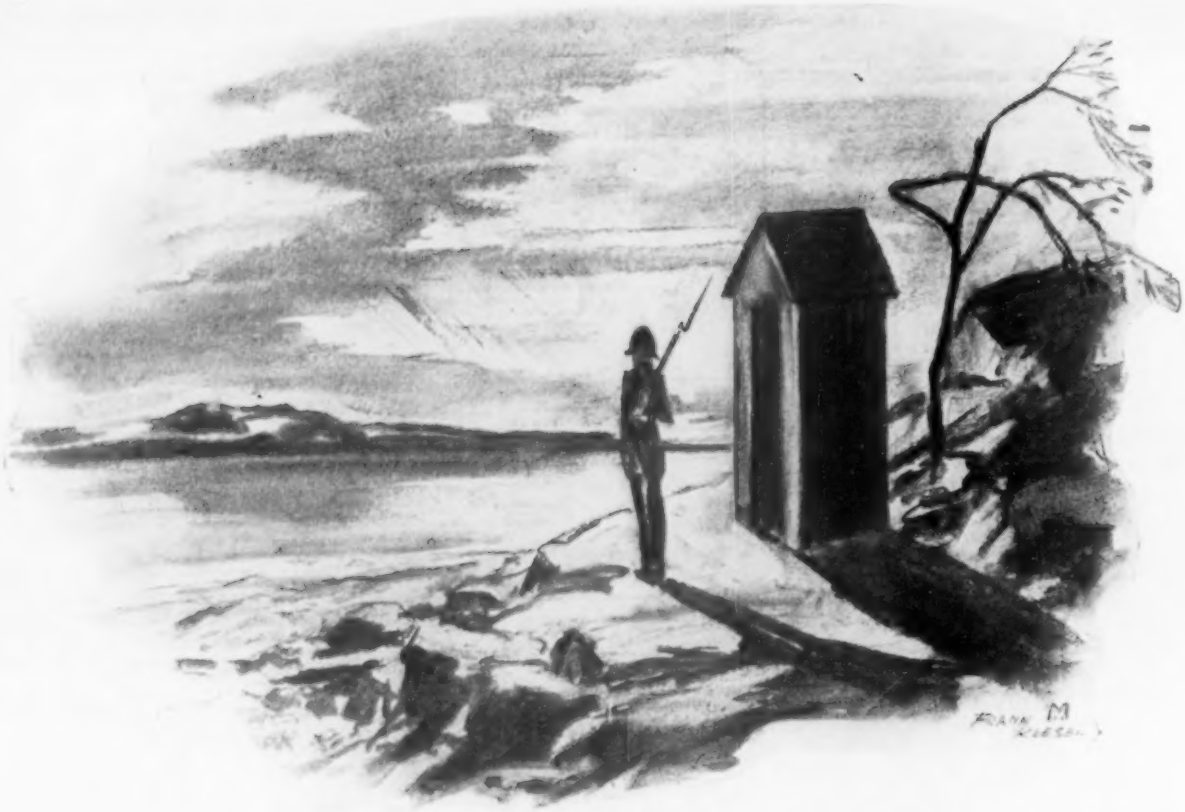
AFTER steadily following a downward course for about a year and a half, municipal bond prices made a slightly more encouraging showing during the past month. For some weeks the money situation has been improving, and it is this easing of the credit strain that is reflected in a perceptible betterment of bond values. Many authorities are now taking up the cry: "Now is the time to buy long-term bonds," although there are still not a few students of financial markets who see nothing favorable in the bond market outlook for the rest of the year.

During the first half of 1929, new flotations of municipal securities reached the large total of $700,000,000. Contrary to the rather generally accepted idea, the higher rates demanded by investors did not result in drying up the volume of municipal borrowing. The figure first mentioned is only 10 per cent under that for the corresponding period of last year, during practically all of which time there was a ready market for new bonds at much higher prices. It is no doubt a fact that some of the larger cities and a few states have held back large loans because of market conditions, and have financed pressing needs through the medium of short-term note issues which will be funded into more permanent bonded indebtedness at some future time.

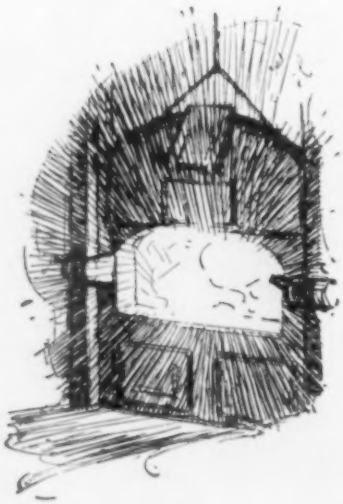
The municipal bonds business since July 1 has been quite inactive, as is generally the case during the months of July and August. The outlook is decidedly uncertain. An improvement in prices is dependent on money conditions, and the money market is, in turn, dominated by a stock market which as yet shows no sign of letting down.

The following table gives the net interest cost on a number of representative municipal bond issues awarded at public sale during recent weeks:

Amount	Municipality	Rate (%)	Maturity	Basis (%)
$2,000,000	Atlanta, Ga.	4½	15 Avg.	4.42
600,000	Woburn, Mass.	4½	1-15 Ser.	4.44
530,000	Indianapolis, Ind.	4½	16 Ser.	4.45
180,000	Poughkeepsie, N. Y.	4½	9 1/3 Ser.	4.48
800,000	Utica, N. Y.	4½	1-20 Ser.	4.49
142,000	Portage Co., Wis.	4½	6 1/3 Avg.	4.50
2,550,000	Richmond, Va.	4½	34	4.52
3,890,000	Syracuse, N. Y.	4½ & 4¾	1-10 Ser.	4.59
438,000	Middlesex Co., N. J.	4¾	13 Avg.	4.61
27,000	Elizabeth, Pa., Sch. Dist.	5	15 Avg.	4.70
50,000	Battle Creek, Mich., Sch. Dist.	5	8½ Avg.	4.74
300,000	Washington Suburban Sanitary Dist., Md.	4½	30-50 Opt.	4.75
75,000	Hutchinson, Kan.	4½	5½ Avg.	4.78
300,000	Long Beach, Calif.	5	9 1/3 Avg.	4.81
150,000	Fayette Co., Iowa	5	10½ Avg.	4.92
365,000	Knoxville, Tenn.	4½	6½ Avg.	5.02



Unsung Guards Keep Watch



Bells peal . . . the martial bands strike up . . . a romantic hero comes home to thunderous acclaim! But here and there unspectacular duties are faithfully performed and unsung guards keep watch.

The citizenry which a Sterling Destructor serves is unaware, no doubt, of either its function or its purpose. They never guess that the operation which it carries on might be a vicious threat against their comfort and their peace.

But you know. You realize the danger of air pollution from unsanitary refuse disposal. And you also realize, we think, that the Sterling Destructor absolutely obviates it, that it reduces mixed garbage and waste, by perfect combustion, to sterile gas and ash. It performs a humble but an important task economically, faithfully and well. There is a booklet descriptive of the Sterling Destructor. May we send you a copy?

THE C. O. BARTLETT & SNOW CO.
6220 Harvard Ave. Cleveland, Ohio

Bartlett-Snow

Refuse Disposal Plants

Items and Abstracts *for* CIVIC AND COMMERCIAL ORGANIZATIONS

Industries and the Town

A WORD of warning to communities intent upon acquiring industries by building new factories or expanding the old is sounded by E. W. McCullough, Manager of the Department of Manufacture of the Chamber of Commerce of the United States. Vacant plants in many places stand as a mournful reminder that many towns were more intent upon expansion than upon the industry.

He sums up the most important considerations facing the proponents of industrial expansion in this way:

1. *The commodity,* or what is to be made. Its selection is of the utmost importance.

2. *The markets,* to absorb enough of the product to keep the plant in constant profitable operation.

3. *Factory location,* that will meet all demands for efficient and economical production and distribution.

4. *Capital,* ample for continuous operation.

5. *Management,* experienced, and of past proven success in the line chosen.

It is not profitable for any community to establish or help to establish an unprofitable industry, Mr. McCullough points out. In many places in this country the vacant factories stand as tragic reminders of a too exuberant desire for industrial expansion and a disregard of the economic factors that govern normal and sound industrial growth.

The Civic Conference Committee of Glen Ridge, N. J.

THE borough of Glen Ridge—population 4,620—moves along politically with noteworthy smoothness. The outstanding reason for this admirable condition is set forth in the letter to the citizens of the borough sent out early in the year by the Civic Conference Committee, from which the following paragraphs are quoted:

TO THE CITIZENS OF GLEN RIDGE:

The Civic Conference Committee was formed in 1913 with the view of eliminating partisanship and selecting candidates for the various Borough offices, solely because of their qualifications for the office to be filled. It combines the various political and civic organizations of Glen Ridge in a non-partisan joint committee. The organizations represented in the Committee are the following: The Republican Club; The Democratic Club; The Women's Club; The Home and School Association; The North End Association; The Glen Ridge Forum.

The Committee is made up of twenty-four members, four from each organization. No person holding elective office in the borough may be a member of the Committee, nor can any citizen serve more than three consecutive years. The present officers are: Mr. Charles E. Doe, chairman; Mrs. George F. Scull, Vice-Chairman; Mr. Frank E. Barrows, Secretary-Treasurer.

Regular meetings are held the second Monday in January to select candidates for the Board of Education, and the second Monday in April to select candidates for borough offices. Notices of the meetings, and of the vacancies to be filled, are published in the local papers.

All the citizens of the borough are invited to present names to the Committee for its consideration. This should be done in writing, with a statement of the qualifications of the persons suggested, and should be sent to the Secretary.

All persons suggested to the Committee are considered by it. All discussions of the Committee are confidential, and selections are made by ballot from all the names suggested. The delegates are not instructed to support any nominee by the organization they represent. Their one duty is to select the best candidate, and only one candidate is selected for each office.

This information is being sent to the citizens of the borough so that those desiring information about the Committee may have it available, and as a reminder to those already familiar with its activities. A copy of the Constitution and By-Laws is enclosed.

The effectiveness and permanence of the good government under which Glen Ridge now thrives depends to a very marked degree on the expressed interest of the citizens, and their intelligent participation in the functions of town government.

The letter closed with a notice of the date of the next meeting, to select candidates for the Board of Education, and an invitation to the citizens to send suggestions for nominees, with a statement of qualifications, to the Secretary. The letter was signed by the Publicity Committee, of which E. L. R. Cadmus is Chairman.

Here is presented the functioning of a method of community cooperation based on intelligent ideals and resulting in peace and prosperity.

Three Civic Campaigns in One at Watertown

A SAFETY campaign, a fire prevention program, and a clean-up week, each characterized by unique features, were conducted simultaneously recently at Watertown, N. Y., under the auspices of the local Chamber of Commerce.

A-B-C, "Always Be Careful," was the slogan of the Safety Committee, and the three letters were written in red chalk on all crosswalks in the downtown section by Boy Scouts. Six two-way bulletin boards bearing safety messages and warnings were installed in the Public Square and will remain there as permanent fixtures. The Police Department conducted a brake test, and of 636 cars inspected, only 19, or less than 3 per cent, were found to have defective brakes. Of these, 13 had their brakes adjusted and then passed the test. Commercial truck owners also cooperated. Special signs indicating how long the various trucks had been in service without an accident were carried on the sides of all such cars.

In emphasizing the fire prevention work, posters were hung on fire-hydrants about the city by the Fire Department. A special window exhibit depicting the most common causes of fire was prepared by the fire prevention committee and attracted many.

As result of the beautification movement, the school children reported 6,000 houses and yards painted, cleaned, or otherwise improved. The Public Works Department hauled away 1,013 tons of rubbish from residences in conjunction with this phase of the work. Pupils in each grade competed in a clean-up contest with prizes for the winners and a grand prize for the school which won most of the grade awards. The service clubs, Boy Scouts, the local theaters and various municipal departments collaborated in the "three-in-one" campaign.

Community Clubs in Ohio Villages

AMONG the most interesting organizations in rural Ohio are the community clubs which are functioning throughout the state. These clubs are found in the smaller towns and villages and include in their membership both farmers and townspeople. They are strictly local in character and have no official connection or association with one another.

Two examples of such organizations are given by Perry P. Denune, of the University of Ohio, in a recent issue of *Rural America,* as typical of hundreds of others:

"The Tarlton Community Club is located in a hamlet of about 270 inhabitants situated some 40 miles south-east of Columbus. This club has a membership of 200 men and women, half of whom are from the farming country round the hamlet. The club maintains a community hall where local home-talent entertainments, community suppers, and other gatherings are held. In addition, it sponsors annually a farmers' institute and aids in many other community projects.

"The Plain City Club is located in a village of about 1,400 inhabitants, 20 miles northwest of Columbus. It had when the writer visited the village, 119 members of whom 34 were farmers. It maintained club rooms on the second floor of one of the bank buildings of the town. This club promotes a free Fourth of July picnic annually for the whole community, and an annual corn show in the autumn. It helps support the local baseball team and the driving club. It also lends its support to other community projects."

10% Reduction in Price of 1929 PEERLESS Fire Alarm Box

Several months ago the new Gamewell fire alarm box was announced. Since then, the box has met with a favorable reception everywhere it has been seen. The cities listed below and scores of others have already installed or placed their orders for quantities of this box:

Palo Alto, California
Denver, Colorado
Hartford, Connecticut
Washington, D. C.
Ft. Lauderdale, Florida
Atlanta, Georgia
Duluth, Minnesota
Detroit, Mich.
Trenton, New Jersey
Poughkeepsie, New York
Cleveland, Ohio
Lakewood, Ohio
Allentown, Pennsylvania
Providence, Rhode Island
Woonsocket, Rhode Island
Dallas, Texas

We have been able to concentrate largely on one standard model without variation, whereas before, the variations in fire alarm boxes were numerous and expensive. Consequently we have realized economies and are passing them along to you.

A reduction of 10% in the price of the 1929 Peerless Box (street model only) goes into effect immediately. This applies only when the box is ordered in its standard form without any variation whatever. Any special features will be included if desired, but at an additional cost based upon the nature of the change.

This covers the box with the 18 improvements, without any change in the high quality of the workmanship or materials.

(Write for Descriptive Literature)

The Gamewell Company

Newton Upper Falls, Mass.

"A BOX A BLOCK"

Items and Abstracts for DEPARTMENTS of PUBLIC SAFETY

Fire Chiefs Plan Firemen's College

A COMMITTEE headed by Fire Chief John Kenlon of New York, to plan for the establishment of a college for firemen was appointed at the closing session of the Eastern Association of Fire Chiefs convention in New York City last month.

Other members of the committee, which is to begin work immediately, are Chief Richard L. Smith of Pittsburgh, Chief Ross Davis of Philadelphia, George Booth, Chief Engineer of the National Board of Fire Underwriters, and Charles H. Fisher, Consulting Engineer for the Eastern Association of Fire Chiefs. Among the tasks facing the committee are a study of modern fire hazards, the choice of a location for the proposed college, the formation of a four-year curriculum, and consideration of the most effective methods to obtain an endowment for the project.

The college, it is thought likely, will be located in New York City, or close by, and Chief Kenlon has suggested either Columbia or New York University. Rutgers University at New Brunswick, N. J., has also been mentioned. In discussing the need for an advanced school of training for firemen, Chief Kenlon said:

"Protection of life and property from fire is becoming an increasingly complicated task. This is particularly true in our great cities with their amazing concentration of property and population. Our huge skyscrapers, the increased use of inflammable film and fuels, the development of great airports—all these have given us problems not dreamed of by firemen of a generation ago.

"We need a new class of fire engineers trained to cope with these problems. I am sure that we shall be able to enlist the aid of some wealthy person or persons who will help us endow this college. The courses probably will embrace hydraulics, hydrostatics, chemistry, architecture, and kindred subjects."

Death Peril Only 75 Times as Great in Air Navigation as in Motoring

MAN has now reached the point in his development of air navigation where it is only seventy-five times as dangerous to operate a plane for a given number of miles, as an automobile, for a trip of the same length, according to a computation made by *The World* (New York) from figures released last week by F. C. Martel, Chief of the Statistical Bureau of the Aeronautics Branch of the Department of Commerce.

Aviation accidents in the United States took 384 lives in 1928, Mr. Martel reported. The total distance flown by all aircraft, civilian, commercial and Government, during 1928, according to the Aeronautical Chamber of Commerce, was 65,658,936. This means one life for every 170,960 miles.

The National Automobile Chamber of Commerce estimates that 24,932 were killed in motor accidents in the United States during 1928. There were 24,493,124 cars, which, according to the Chamber's estimate, traveled 6,000 miles each. Computation shows that one life is sacrificed for every 6,001,219 automobile miles. The latter number divided by 170,960 gives 35. The ratio of danger per mile of automobiling to aviation would therefore be 1 to 35 were it not that some 55 per cent of those killed in motor accidents, according to the Chamber, are pedestrians.

The relative danger of autos and planes was computed by multiplying 35 by 2 and adding 5, giving the approximate ratio of 1 to 75.

The Need of Crime Statistics That Mean Something

"POLICING is the first line of defense against crime" says The Detroit Bureau of Governmental Research in a recent issue of its occasional leaflet, *Just a Minute*. "Some day public opinion will give it the politically independent and scientific position now had by public health and educational activities—and demand similar results." But adequate, *uniform* records are essential if American police departments are to meet the immensely changed conditions with respect to crime—the result of the automobile, prohibition, economic stress, home neglect, and other elements of our perplexing life.

"Of course," says the Bureau, "statistics do not catch criminals. Statistics do warn the police of increased criminal activity, point the time and place that crimes are committed, so that the force may be distributed properly, and provide a rough index of police efficiency." Illustrating the uselessness of "comparable" statistics that do not compare, the leaflet deals with the recently published press dispatch on the "homicide rate" for large cities, north and south. Detroit was stated to have had 228 homicides in 1928, and some commentators treated those homicides as murders. "In truth, Detroit had 120 felonious homicides—murders, second degree murders, and manslaughters. There were also 86 killings by police officers in line of duty, and by citizens and found excusable. In addition, the police concluded that 57 of 322 traffic fatalities were negligent, an opinion concurred in by juries in 19 of these cases. Thus the record might read 120, 206 [120+86], 263 [206+57], or 528 [206+322], but not 228.

"All of which points again to the need of crime statistics that mean something—standard definitions of crime and uniform methods of reporting crimes by all cities."

The Detroit Department is stated to be the first to compile its annual report in accordance with the recommendations of the Committee on Uniform Crime Records of the International Association of Chiefs of Police.

Making Police Work a Profession —Not Just a Job

THAT greater care is needed in the selection of personnel than ever before, because of the increasing complexity of services now demanded from police departments in our American cities, was pointed out by Walter R. Stone, former Mayor of Syracuse, at the New York State Conference of Mayors and other municipal officials, held in Binghamton, June 18-20.

"No longer does mere size, physical strength or political influence provide the prime requisites of fitness for police service. Given normal health and good character, the ideal policeman—the future valuable sergeant, lieutenant, captain or higher police official—is one who is urged into the work because he feels in himself not only a desire, but an ability to render good service in this particular field. To such a one, police work is bound to be a profession, not just a job.

"How nearly the average will come to this ideal depends almost entirely upon the methods used in selecting the new patrolmen. The community which has a conscientious, experienced civil service board determined to use the most approved and, if you will, scientific tests in the selection of its patrolmen—ignoring ulterior influences and rating on merit alone—will be a safer, a happier and a more progressive place in which to live and prosper. . . . In my opinion, what we know as patronage, certainly as applied to the selection of policemen, firemen or school teachers, is and always has been a fundamental weakness in the program of any political party that trades in it. Surely, in these branches of the classified service the best only should be sought, and once obtained automatically proves the old adage that 'Good government is good politics.'"

$50,000 Appropriated for Parking Ordinance Enforcement in Detroit

ON July 24 the City Council of Detroit, Mich., appropriated $50,000 to be expended by the Police Department within the next thirty days in a campaign to bring about more strict observance of parking rules. The appropriation is to be used as a revolving fund and, according to H. M. Gould, Traffic Engineer for the Police Department, the expenditure will be more than made up through the impounding of at least 20,000 automobiles.

The result of this interesting experiment will be reported in a future issue of THE AMERICAN CITY.

Of Interest to Public Safety Departments

Are pages 85, 99, 128, 145 and 163 in this issue.

Police chiefs are specially recommended to the article by John Otey Walker (page 85).

Stop These Accidents!

TRUCK KILLS BOY
Homer J. Smith, age 5, of 2618 Prospect Ave., was run down and instantly killed by a truck at the corner of Butternut and Mulberry today. The driver was arrested.

Courtesy Scripps-Howard Newspapers

STANDARD Sure Stop MARKER

RUBBER STOP Signs reduce Traffic Accidents at dangerous intersections.

YOU can protect the School Children best by equipping your School Zones with Flexible Rubber SCHOOL SLOW Signs.

They are installed in the street directly in line of motorists vision where their warnings cannot be overlooked.

Write for Full Information

STANDARD TRAFFIC MARKER CO.

1711 East Second Street

WICHITA, KANSAS

JOHN F. SCHRODER
Fire Chief, Covington, Ky.
(Appointed 1927)

JOHN GILDAY
Fire Chief, Hoboken, N. J.
(Appointed 1918)

E. A. McGRANAHAN
Fire Chief, Wheeling, W. Va.
(Appointed 1922)

GEORGE BLACK
Supt. of Public Safety
Wilmington, Del.
(Appointed 1927)

EUGENE H. DABNEY
Fire Chief, Staunton, Va.
(Appointed 1921)

WHO'S WHO IN PUBLIC SAFETY

A Series of Portraits of Fire and Police Chiefs, Which Have Appeared Monthly Since the January, 1928, Issue

WILLIAM J. LUTZ
Fire Chief, Wilmington, Del.
(Appointed 1921)

J. A. SELVEY
Police Chief, Dover, Del.
(Appointed 1928)

HARRY J. FRANCIS
Fire Chief, New Brunswick, N. J.
(Appointed 1912)

HERBERT C. WILDEY
Police Chief, Morristown, N. J.
(Appointed 1920)

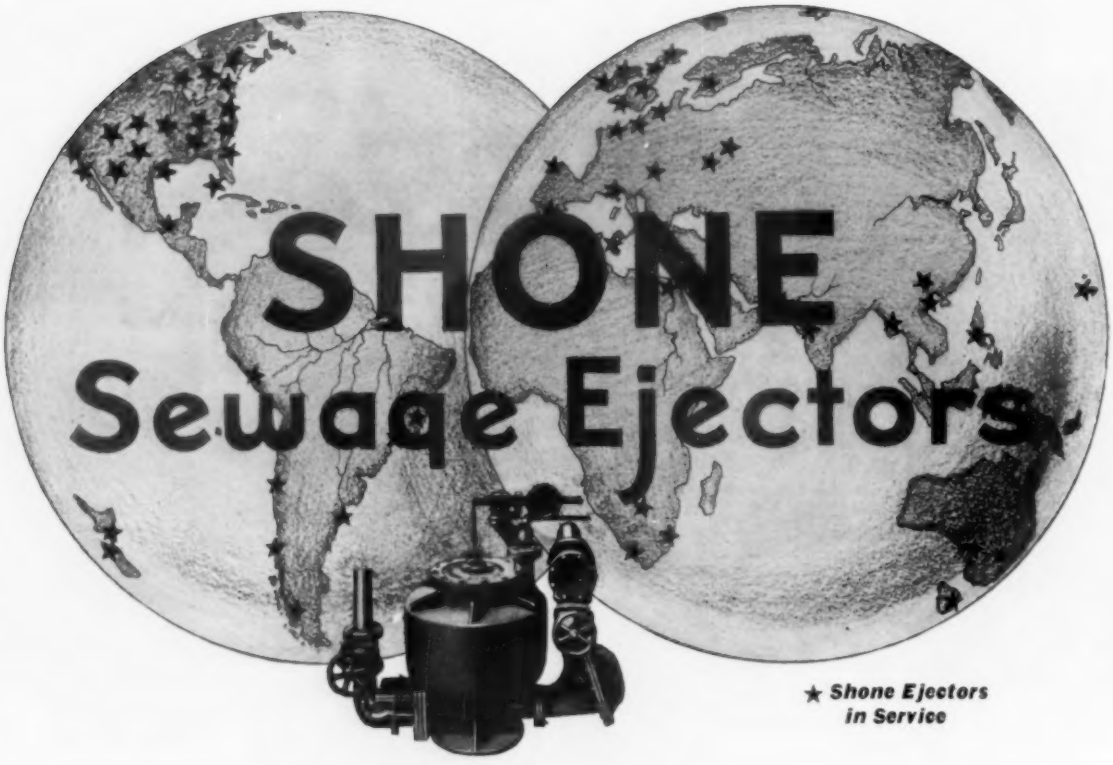
THOMAS A. GILMORE
Fire Chief, Huntington, W. Va.
(Appointed 1928)

C. W. SMITH
Police Chief, Morgantown, W. Va.
(Appointed 1922)

WILLIAM F. O'NEILL
Fire Chief, Weehawken, N. J.
(Appointed 1926)

KNOWLTON F. PIERCE
Fire Chief, Kearny, N. J.
(Appointed 1921)

ADAM A. RITTER
Fire Chief, Clifton, N. J.
(Appointed 1918)



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Pumping the World's Sewage

For more than fifty years the Shone Pneumatic Sewage Ejector has been standard equipment in civilized centers the world over. Today it remains a preference of engineers everywhere, regardless of imitation.

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Do you mention THE AMERICAN CITY when writing? Please do.

AUGUST, 1929
Vol. XLI, No. 2

The American City

443 Fourth Avenue
New York
50 Cents, $4 a Year

A Platform of Progress for Municipalities and Counties:

1. ***City and regional planning and zoning for spacious development***
2. ***Streets and roads that are well built, well lighted, well cleaned***
3. ***An abundant supply of pure, soft, palatable water***
4. ***Sanitary and economical disposal of sewage and garbage***
5. ***Fire and police departments properly trained and equipped***
6. ***Thorough and uniform traffic control; fewer grade crossings***
7. ***Plenty of parks, parkways, playgrounds, and swimming pools***
8. ***Administrative efficiency and citizenship aid in bringing these things to pass***

Fiction Is a Police Curse—What Are the Facts?

Constructive Suggestions for Increasing the Efficiency and Public Understanding of Local Police Departments, Based on a Study of the Recent Kansas City Police Survey

By JOHN OTEY WALKER

Former Director of Public Safety, Knoxville, Tenn., and Petersburg, Va.; Now Manager, Radburn Association, Radburn, N. J.

A VERY small bookshelf will hold all of the publications dealing constructively with police administration. Research workers and students of municipal affairs have devoted years of study and millions of words to constructive criticism of other departments. Much of this criticism and research has been of a nature that the average citizen could understand. As a result, not only have many municipal departments been improved, but the administrator who wishes to better his service has available information enabling him to know where his efforts are leading.

But when the researchers have found time to devote any thought to the police departments of our cities, the net result has been almost always a new form of report, a new collection of records, and recommendations as to the installation of new equipment and an increase in pay for the personnel. These are necessary, but until they are tied into the real, fundamental trouble with the police department, very little permanent good will be accomplished.

The police, dealing chiefly with human beings, their misfortunes, and their blasted hopes, is a rich field for fiction. Human beings make best sellers. Fiction is a police curse. Fiction has created a picturesque though somewhat false picture of police work. Sherlock Holmes and M. Lecoq have made it seem so easy that the public can only charge police failure in the solution of some crime to stupidity or collusion. The police are always on the defensive—and defense breeds reticence. Once in a decade a constructive book dealing with the administration of police is written, but none has so far been produced that can be read, enjoyed, and understood by the man in the street.

In view of the paucity of real police studies, even a local survey such as that recently made in Kansas City by August Vollmer should find a welcome place on the bookshelf of the police administrator. While this survey is local in application, most of the findings and criticisms can be applied to the police department of the average American city, with slight adjustments due to differences in racial groups making up the population, the density of population, the topography of the city, and its geographical location.

The head of any police department who is interested in the betterment of his organization will find many suggestions in this survey that can be applied without budget additions, and in some instances would doubtless result in an eventual budget decrease. In the letter accompanying his report, Mr. Vollmer said:

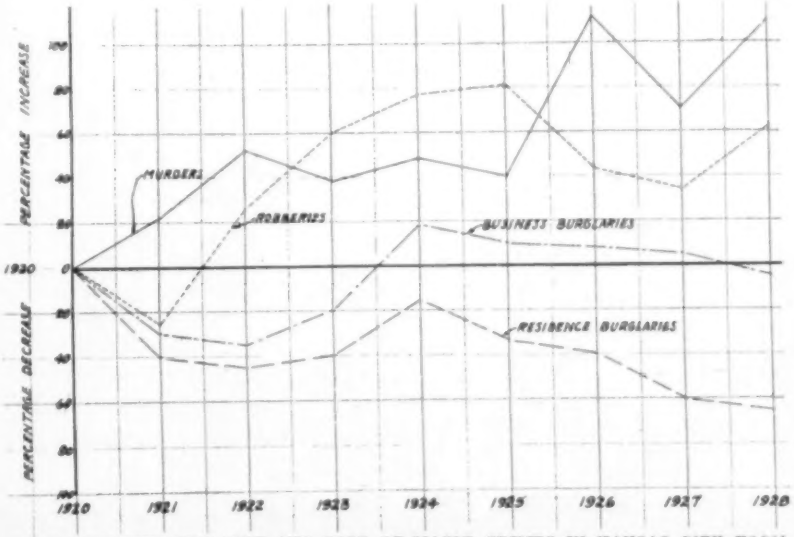


CHART SHOWING THE RISE AND FALL OF MAJOR CRIMES IN KANSAS CITY FROM 1920 TO 1928

"Hampered by lack of modern equipment, miserably compensated for arduous and dangerous duties, unprotected by pension provisions, unsupported by the press, pulpit, and public, ridiculed and berated by other law-enforcement officials, kicked around by unscrupulous politicians, it is remarkable indeed that the policemen have been able to maintain any semblance of law and order in this growing community."

This paragraph can be applied in its entirety to nearly all police departments in our American cities, and in part to all of them. The correction of these evils means the erection of a perfect framework for the support of a properly functioning police organization.

Fundamentals and Refinements

The great danger, however, is that with the erection of this framework a community may feel that its job is finished; so perhaps the most important thought in the entire Kansas City report is in the next paragraph of the same letter:

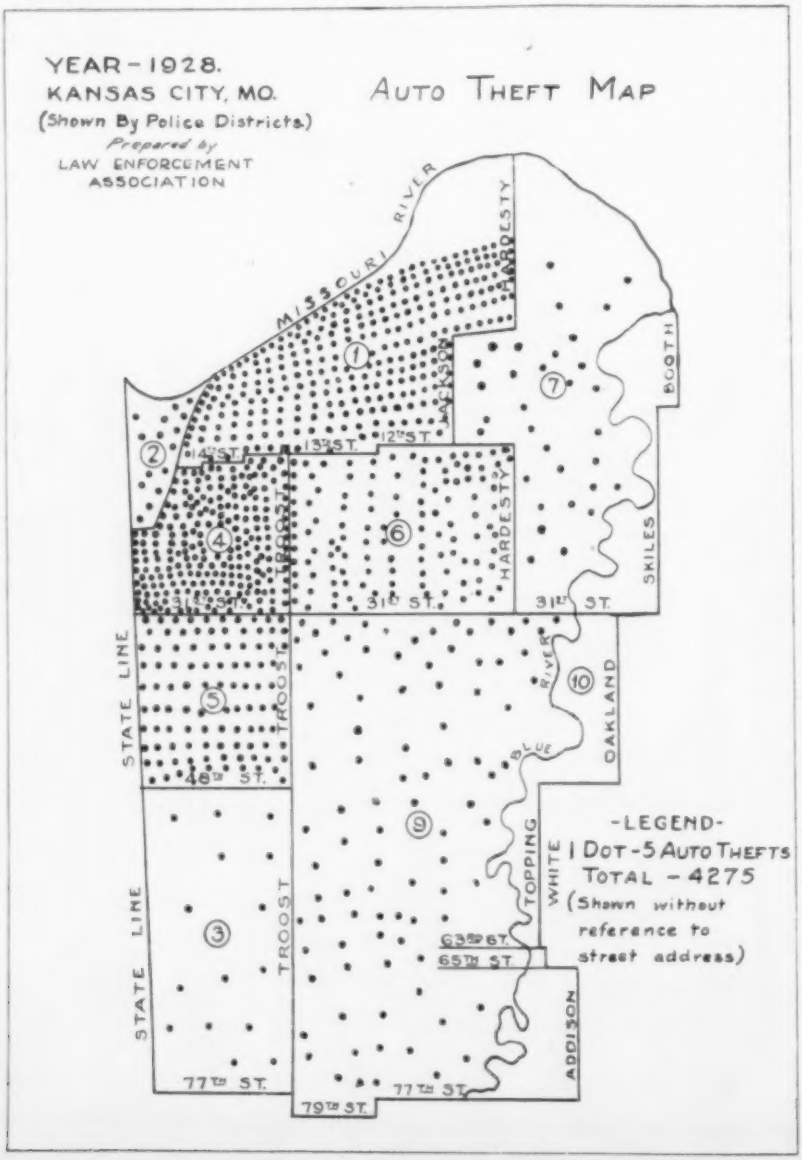
"Recommendations in the report include only such items as are fundamental to successful police organization and administration. Refinements have not been discussed or even suggested, because the plan submitted for the amelioration of local conditions, though elementary in nature, will require considerable time to put into operation."

In these refinements one will find the secret for the final solution of the police worries of our American cities, and without these refinements we may have a beautiful organization, well equipped, with perfect records, but shall have an organization without a soul; and without a soul, a police department will be nothing more than a shell ready to crack under trying conditions.

The most important single recommendation in Mr. Vollmer's report is:

"In this program the chief must be the chief executive officer, charged with complete responsibility for the entire department, and responsible only to the Board."

In other words, the chief of police must actually be the chief, and until he is given free and unhampered control of his organization from top to bottom, the remainder of the report, so far as the securing of any permanent improvement, might as well be filed carefully away.



Spot Maps, Graphs and Charts

The first thing for the head of a combative organization to know is where the enemy is that he proposes to attack. The second is to have a sufficient group that can be quickly concentrated at a given point, so as to make the attack successful. With the first in mind, it is hard to believe that any head of an organized police department would fail to include in his office records spot maps of the type included by Mr. Vollmer in his report, as spot maps show at a glance the location of bad spots in a community, and the increase of spots in a specific area should be a subject of great concern to the organization head.

While graphs and charts, by the increase or decrease in spots and the rise and fall of a wavy line, are of great value, these must be properly interpreted, or the person who reads may secure an entirely false impression.

Spot maps showing offenses against persons and property are absolutely essential, as Mr. Vollmer has said, in making a proper distribution of the force available to combat crime. For practical use, it would perhaps be better for these maps to be of a scale permitting the actual spotting of the offense at the place or very near the place at which it occurred.

Spot maps dealing with liquor violations, narcotics, prostitution, and gambling, all of which may be classified as vice, are of doubtful value unless carefully prepared and constantly followed up. Information as to vice activities comes to the department from various sources and all reports are classified as complaints. Experience proves that police pressure exerted to dissipate these evils will frequently cause the people complained of to move to a new location; then a new complaint, more police pressure, and another move. Unless great care is exercised, therefore, in removing a spot from the map when the complaint no longer exists in that place, the spot map at the end of the year would indicate a vastly greater number of vice violations in the community than actually exist.

4,275 Stolen Automobiles

The spot map of automobiles stolen is most enlightening and is reproduced herewith, as the stealing of automobiles is an almost national disease. The number of automobiles actually stolen in

Kansas City, according to this report for the year 1928, was 4,275. (About 90 per cent of these were recovered.) At an average of $500 per car, there is a total value of $2,137,500. Add to this sum, rewards paid, the cost of search, damages to cars recovered, the cost of trial, the loss of time by officers engaged in search and court attendance, and many other incidental items involved in the handling of automobile theft cases, and we have for the sum total a very sizable bill. All of this for a preventable crime.

The person whose automobile is stolen from the streets of his home city usually feels that the police have been most neglectful, and that the whole organization is encouraging the stealing of cars with the hope of rewards or a share in the ill-gotten gains, when as a matter of fact the community of which he is a member is responsible. As yet there is no city with courage enough actually to prevent this crime by abolishing all parking on the public street, instead of permitting the Police Department to carry the load. The probability is that for years to come the "King's Highway" will continue to be used as an unsafe depository for valuable property, and cars will continue to disappear. It is most fitting for a police department to have an automobile spot map in order to see the most affected areas, but most of all for its citizens to see, and perhaps it might best be called "the city's shame map."

Murders, Robberies and Burglaries

The most valuable charts in checking the actual effectiveness of police units are those showing the rise and fall of offenses againt persons and property. One showing murders, robberies, business burglaries, and residence burglaries from 1920 to 1928 in Kansas City is reproduced herewith. These charts should be used only for crimes of which the police receive nearly a 100 per cent report, and it would perhaps be better to use a separate chart for each group of offenses, showing on this chart a second line, this second line to represent the actual cases made as a result of the offense reported, and the distance between these two lines would indicate at a glance the effectiveness of the department in the apprehension of persons committing that particular offense. In order for the layman to understand these charts more easily, it would be better to base them on actual numbers rather than on percentages. The publication of spot maps and charts, with an explanation, should be made in the local newspapers at regular intervals and regardless of whether the showing is good or whether it is bad.

Should Traffic Regulation Be Divorced from the Police Department?

The reorganization chart appears to be a most excellent one, though the question is now being raised by many people as to whether the handling of traffic should not be divorced from the police department, except so far as certain major offenses are concerned. This idea has grown out of the feeling that the police department has been developed chiefly as a preventive group, and as such has a tendency to retard and to stop.

Because of the facts (1) that a major part of traffic regulations hinges around the summonsing of people for minor violations; (2) that the small penalties involved indicate that these offenses are minor; and (3) that great activity in enforcing minor provisions is extremely irritating, resulting in most unfair criticism and a standing charge that the police are neglecting their most important duties for the purpose of "tagging" cars, it is felt that some means could be developed for eliminating this source of irritation.

After all, the handling of automobiles should be an operating function rather than a preventive one, the chief idea being to move as many cars as possible, as rapidly as possible, as safely as possible, through given areas, particularly in peak load periods. To accomplish this, traffic should perhaps be in charge of some department concerned with operation rather than prevention.

Salaries to Attract Brains as Well as Brawn

The pay scale of police departments should be raised. A city never gets more than it pays for, a brawn price buys brawn, and a brain price buys brains. With the purchase of more brains, greater care must be exercised to see that the city gets clean, honest, faithful brains. The entrance requirements can never be too rigid.

The police school should be a graduate school for officers in the service, to teach new developments, to prepare for promotion, to keep them fresh. With an increase in the pay scale, there is no sound reason why seekers for enlistment should not be required to do their grammar school police work at their own expense rather than at the expense of the city.

The Army Alpha test is not too difficult. It is reasonable to assume that many criminals will rate average or better; therefore, is it sane or fair to a community to pretend to protect a community with men who rate average or below?

A Metropolitan Police Department Intelligently Surveyed and Reorganized

A widespread feeling existing among its citizens that Kansas City was not sufficiently protected against the criminal, and the answer of police officials for the past several years, as in most cities, that what was needed was more men and more money, impelled the Chamber of Commerce of that city to make the comprehensive survey of the Metropolitan Police Department referred to in the accompanying article.

The actual work of preparing the survey was done by the Kansas City Public Service Institute under the direction of August Vollmer, former Chief of Police of Berkeley, Calif., and now Professor of Police Administration at the University of Chicago. The recommendations of this survey have been approved by the Chamber of Commerce and they are now serving as the basis for improvements in the Department.

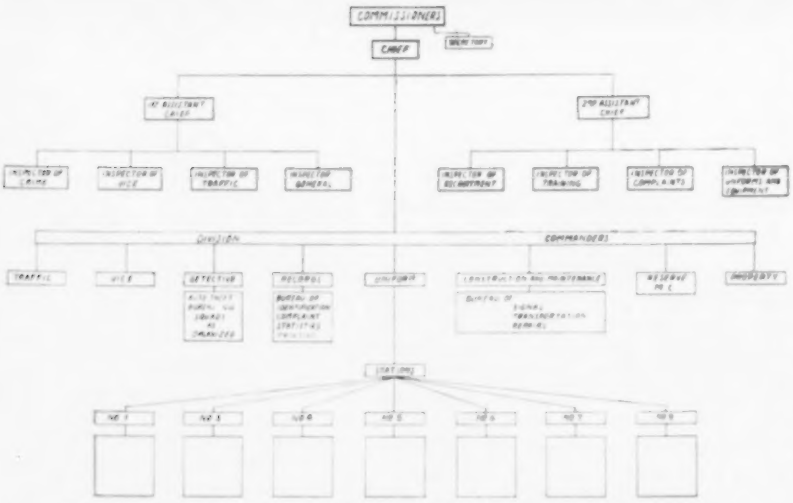
The survey was welcomed by the Board of Police Commissioners, who gave their complete cooperation. The report sets forth a suggested plan for the reorganization of the Department; recommendations for an effective system of employment and promotion, and for the establishment of a thorough school of training for patrolmen before beginning active work in the Department; and a plan for the training of officers.

Among material recommendations are the replacement of the present obsolete and inadequate police call system with a modern, instantaneous system of communication between headquarters and district stations and a system of recall lights enabling the district commanders to be in constant communication with the men under their control.

Modern traffic light control will release practically all downtown officers for other service. A new headquarters station, the renovation and reconstruction of several district stations, and the construction of new stations and the relocation of others are important recommendations.

Motorization of the department, except in the congested area, will relieve more men and make patrolling more effective, and the recommendation to revise the record system and to install tabulating machines should enable the inside of the Department to keep pace with the men on the street.

The foregoing are briefly the major recommendations contained in the elaborate and valuable report.



REORGANIZATION PLAN URGED FOR KANSAS CITY POLICE DEPARTMENT

A Plea for Police Surveys That the Public Will Read

Mr. Vollmer has prepared an excellent technical survey. There is urgent need in our American cities, however, for the kind of survey that the citizens and the rank and file of the police themselves will read and understand.

Some of the recommendations for Kansas City, perhaps all of them, will be put into practice; the people of the city will feel that all's well with the police, until there is a bad break, an unpopular administration, some deaths from poison liquor, a newspaper crime wave; then the ever vulnerable point, the police, will be attacked again. Police figures and records prove either more crime or less, more work or less, depending upon their interpreter.

An engineer with a slide rule can do fairly good engineering. A health officer with a few test tubes can do fairly good health work. A teacher with a place where the children can sit, a few crayons and a blackboard, can give fairly good instruction. A police department with all the material in the world can only hope to be a mediocre department unless the police have the confidence of the citizens, and the citizens of the city are proud of them; unless they are proud of themselves and of their city; unless they are intelligent; unless they are honest and industrious; unless their morale is unbroken; unless there is complete understanding.

Without understanding there can be no pride of ownership or confidence on the part of the citizens of a community in their police.

Without pride of ownership and confidence on the part of the people of the city, the police themselves will lack that essential pride in themselves and their city.

Without this common pride of ownership and mutual confidence, the department will not, regardless of pay, attract the high order of intelligence that should be demanded or maintain that honesty of purpose and unwatched industry a good policeman should always have.

Morale must be maintained. Morale, in the army of peace—the police, as in an army of war, can be maintained only by confidence. So, back to the beginning, confidence must be based on understanding.

In all law-enforcement agencies the people of the country must be taught what to want, how to get what they want, and, most of all, how to keep what they want after they get it.

Recommendations Already Followed

In a letter to THE AMERICAN CITY under date of July 11, Walter Matscheck, Director of the Kansas City Public Service Institute, states that the following action has been taken since the report was completed:

"Considerable work has been done in carrying out the recommendations. A complete new record and reporting system will be installed as soon as tabulating machines arrive. The police signal, recall and teletypes systems have been ordered, and installation will proceed as soon as the locations for call boxes can be determined. This work is under way. A new beat system, based on complete motorization of the Department, is being prepared. The Commissioners have announced the policy of eliminating political considerations in all work of the Department. A number of other improvements are being adopted or installed.

"So far, however, the chief failure has been that the Commissioners have not yet adopted the reorganization plan, standards for entrance to the department, or a scientific method of selection and training of men. These are being considered, but little has actually been done."

Public Administration Courses Prove Success

THE second annual short course in public administration, conducted as a division of the School of Citizenship and Public Administration of the University of Southern California, at Los Angeles, attracted students and officials from 4 states and 53 cities this summer.

Including all those connected with the enterprise, 650 persons participated in the work, which involved study periods in college classrooms from four to six hours each day during a two weeks' period. Sixteen sections with curricula outlined in 16 different fields of public administration were in session. Each of the sections met for one week, nine of them being in attendance the first week and seven the second. A leader or instructor was in charge of every section. Various papers, lectures and discussions served to emphasize the important aspects of the particular phase of public administration being considered by each group.

The content of the courses was outlined by a committee of men engaged in governmental work with the cooperation of the University. Sections were assembled for discussion of problems falling under the following general headings: principles of government, housing, public buying, planning and zoning, personnel in public administration, appraisal and assessments, special assessments, city clerkship and administration, taxation, public administration, sanitary engineering, budgets, water-supply, governmental accounting, recreation and parks, municipal chemistry and testing, juvenile welfare, and school trustees' problems.

A classification of those attending shows that the following groups were represented: assessors and tax collectors; boards of education; school superintendents; school trustees; bureaus of budgets and efficiency; building departments and inspectors; chambers of commerce; clubs and civic organizations; citizens; civil service; clerks of cities and counties; colleges; commercial firms; controllers, treasurers and accountants; councilmen; engineers in public work; fire departments; health departments; legal departments; city managers; mayors; planning bodies; playground and recreational departments; probation departments; police departments; public service departments; purchasing agents; recorders; sanitary engineers; social welfare groups; street traffic organizations; water, power and light departments; and parent-teachers associations.

It was primarily as result of the first short course that a permanent School of Citizenship and Public Administration was opened last March at the University of Southern California. This is a regularly organized professional school, recognizing public administration and the field of public service in the same manner that law, engineering and commerce have long been recognized. The degree of Bachelor of Science in Public Administration and Master of Science in the same field may be earned through work at this school.

A City Justly Proud of Its Waterfront and Recreational Assets

By DR. B. MATEKA
SECRETARY, MUNICIPAL INFORMATION BUREAU, BUDAPEST, HUNGARY

NOT far from where the Danube turns south, lies a most interesting and beautiful city—Budapest. Natural conditions predestined this city to be the capital of the Magyar kingdom. The great Hungarian plains meet here, and here the last row of hills from the western range touches the lovely lowlands. Budapest was the gateway to European civilization, and has experienced the extremes of political and cultural development. It now has nearly one million inhabitants and is the tenth largest city in Europe, varied in its beauty and of great economic importance.

The most powerful river of central Europe divides the city into two strikingly contrasted parts: Buda, on the right bank, rich in historical architecture and associations; and, on the left bank, Pest—a modern metropolis, with Paris-like boulevards, hotels, museums, theaters, and fine public buildings. If one arrives by steamer, at night, he finds an entrancing scene—the illuminated palaces along the Danube embankment, bordered with fragrant acacias, where thousands promenade on summer evenings. At the foot of the Royal Gardens the splendid arch of the suspension bridge connects the banks.

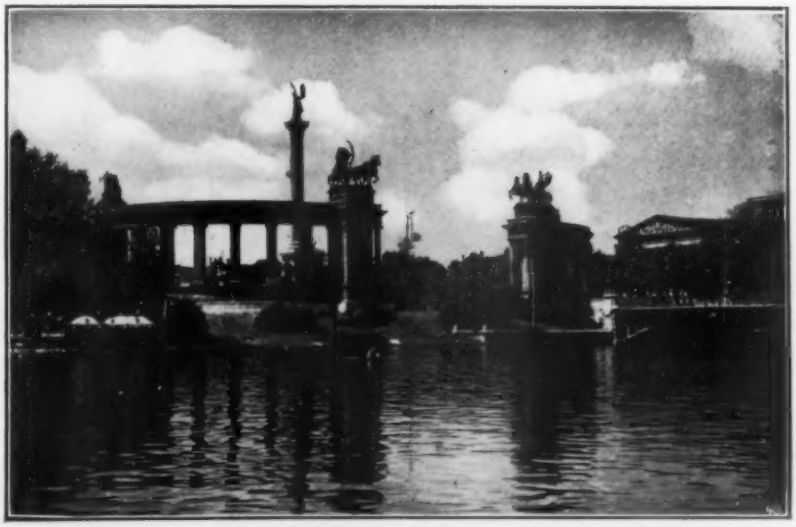
The color and action of the city, its imposing buildings, its fiery—yet often dreamy— music, its parks and terraces and gardens, and its thermal and mineral springs and baths, hold the visitor who seeks health and enjoyment in the midst of a rich combination of historic, artistic and economic features.

Notable among the bathing establishments of Budapest are three owned and operated by the municipality—the St. Gellert Baths, with their indoor and outdoor pools operated in connection with a municipal hotel; the splendid bathing establishment situated on St. Margaret's Island, with charming lawns, shadowy promenades and magnificent rose gardens nearby; and the summer bathing pool in the City Park, built in the ancient Roman style. The last mentioned, illustrated on the front cover of this issue of THE AMERICAN CITY, is one of the most splendid recent public works of the city of Budapest.

EDITORIAL NOTE.—The two other views shown on the front cover are the entrance to the municipal zoological gardens and a panorama of the Danube taken from the balcony of the Royal Palace. The statue shown in the latter is that of Eugene de Savoya, who freed Buda from the Turks in 1686.

BRIDGE ACROSS THE DANUBE AT BUDAPEST

THE ILLUMINATION OF THE RIVER AND ITS PROMENADES



THE MILLENNIUM MEMORIAL IN BUDAPEST

Filter Plant Rids Midland Water of Chemical Taste

By PAUL STEGEMAN

SUPERINTENDENT, WATER DEPARTMENT, MIDLAND, MICH.

ON account of the characteristic underlying geologic strata of a large section of midcentral Michigan, the problem of obtaining a supply of ground water suitable for drinking purposes has been a matter of great concern and considerable expense to a number of cities situated in the Saginaw valley. The city of Saginaw, before undertaking the construction of the rapid sand filter plant now under way, spent a considerable sum of money in prospecting and testing a series of deep wells in the Clare watershed. These well were finally abandoned because of their high chloride content. The history of this project is paralleled, though on a smaller scale, in the story of the present water-supply of the city of Midland, a rapidly growing city of 9,000 inhabitants, lying about 20 miles northwest of Saginaw at the confluence of the Chippewa and Tittabawassee Rivers.

Underlying Chemicals Complicate Problem

The city of Midland owes its major industry and probably its existence to the underlying deposits of the chlorides and bromides of calcium, magnesium and sodium, which can readily be pumped to the surface as a saturated solution and which are the base material of the very extensive chemical industry located in the city. Whether because of upward leakage from the deeper-lying strata or from secondary shallower deposits of these salts, even comparatively shallow wells, on being pumped for some time, acquire a characteristic "chemical" flavor so marked at times as to make them unsuited for drinking purposes. Two deep wells were drilled by the city some years ago but after being pumped for some time had to be abandoned because of the objectionable flavor which the water eventually acquired. No money being available for a more elaborate development at that time, recourse was had to the untreated waters of the Chippewa River as a supply for the city water system. This water was of course, unsuited for drinking and culinary purposes, and the "water-pail brigade" was an every-day sight on the streets of the city, as all water for household purposes had to be carried from a relatively small number of wells scattered about the city. These wells were tested by the local Health Department, but in spite of their best efforts cases of typhoid were of frequent occurrence, assuming at times epidemic proportions. The fact that no deaths attributable to water-borne diseases have occurred since the present plant was put into operation, stands in happy contrast to the previous condition.

Bonds Voted for Filtration Plant

The untreated waters, coming as they did from a shallow stream subject to flood conditions and sewage contamination from upstream population, were open to objection even for bathing purposes, and the dissatisfaction was so general that when the matter of bonding the city for a filtration plant was put to vote, it carried by the largest majority in the city's polling history. This vote occurred in March, 1926, and within a year the plant had been completed, the city's distribution system overhauled and extended, and filtered water was available. Previous to this time it had not been considered possible to meter the service, because of the nature of the water used, as suspended solids tended to clog the meters, and the estimated consumption for the various types of service was met by a flat-rate charge. Simultaneously with the construction of the new plant, the service was metered except for fire and street use, and some very interesting data on consumption before and after metering became available.

Design of Filtration Plant

The filtration plant proper was designed by Hoad, Shucraft, Decker and Drury, consulting engineers, of Ann Arbor, Mich. It is two-story, with a basement, built throughout of brick and reinforced concrete, and is a modern plant throughout. The ground floor houses the coagulating basins, the clarifier, the filter beds and laboratory, and the settling tanks and the clear well storage are immediately adjacent to the building proper. The second floor is used for chemical storage and houses the dry-feed machines, and the high-pressure pumps are housed in the basement. The low-lift pumps are in a separate station at the river bank about ¼-mile away, the pumps being under remote control from the main station. It was necessary to build the plant at some distance from the low-lift station to avoid danger at the time of the annual spring freshets, as the river banks at this point are not above the danger point. The low-lift station, however, was built so that no danger from high waters is expected.

Preliminary Treatment

The water is taken from the river through a screened intake and discharged to the coagulating basins without preliminary settling. The basins are four in number, the first two with a capacity of 8,000 gallons, and the second two of 20,000 gallons each. They are baffled by four "over-and-under" baffles and equipped with paddle stirrers driven by variable-speed motors. The retention time of the basins at the normal daily 2,000,000-gallon pumpage is approximately 40 minutes. Leaving the coagulating chambers, the water is discharged into one side of the clarifier, and discharges from the opposite side, the settled matter being raked to the center of the tank and discharged from the bottom either intermittently or continuously as conditions require. The settled solids are discharged to the sewer, as experiments on the recirculation of the sludge for further use as a coagulant have proved of doubtful value in this case. The retention period of the clarifier is about 60 minutes, though in practice it is considerably less than this.

Final Treatment

The effluent from the clarifier enters the settling tanks, which have a retention period of 3½ hours and are equipped with "around-the-end" baffles, the water discharging around the last baffle through a 14-inch main direct to the filter beds. Here the water is filtered and chlorinated and then passes to a 600,000-gallon clear-well storage. This concrete-covered tank, lying as it does adjacent to the main building, maintains a gravity head on the high-pressure pumps which are housed in the basement of the building. The discharge from these pumps goes to a 128,000-gallon standpipe situated about half a mile from the plant, which acts as an equalizer on the city mains. The discharge to the tank is 115 feet above ground level, and the pressure is automatically maintained at between 45 and 55 pounds by an electric control on the pumps. In case of a serious fire or other emergency the pressure in the mains could be raised somewhat by disconnecting the tank and pumping directly into the mains, although this has never been necessary.

Mechanical Equipment

The low-lift pumps are Roturbo pumps made by the Manistee Iron Works, being direct-connected, motor-driven centrifugals. The incoming water is metered by a Simplex venturi meter of the recording, integrating type, so that graphic as well as visual records are available. The clarifier was designed by, and installed under, the direction of the Dorr Co. and is the second clarifier to be installed at a filtration plant in this state. The loss-of-head gages, valves and rate-of-flow controllers are the products of the International Filter Co., and the chlorinator is a Wallace & Tiernan pedestal type machine. The dry-feed machines were furnished by the Leopold Co., of Philadelphia. All the high-pressure pumps are direct-connected, motor-driven centrifugals, also made by the Manistee Iron Works, and are driven by 400-volt d.c. slip-ring motors.

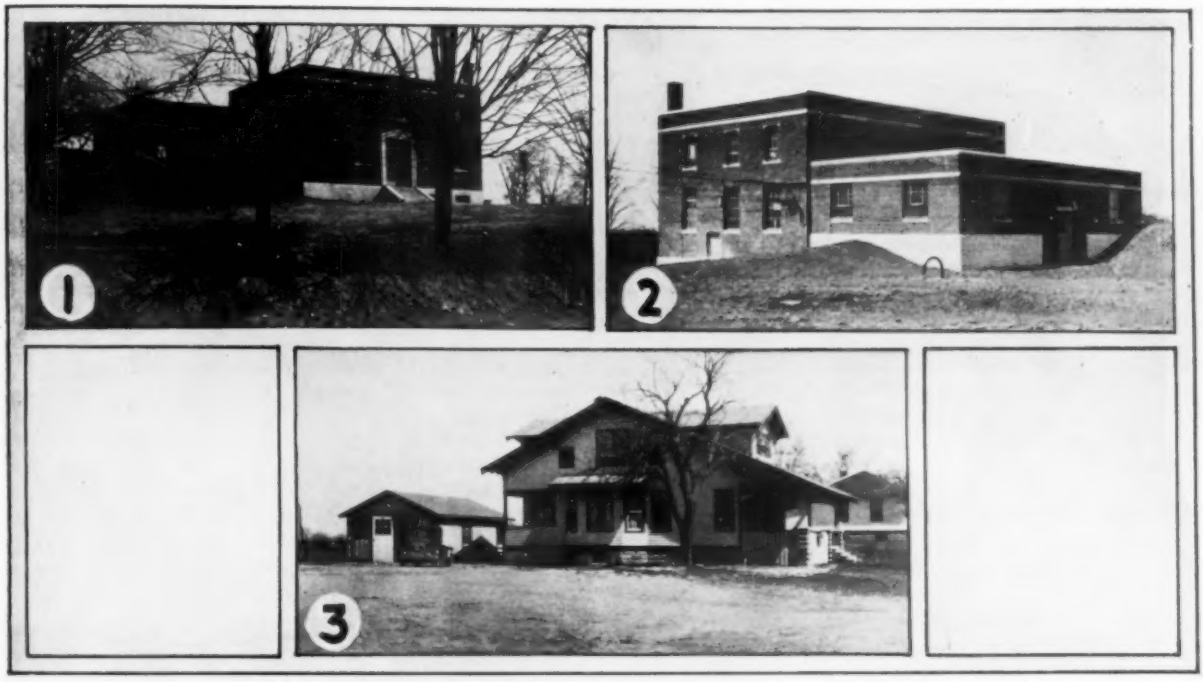
Power for operating the plant is furnished by the Consumers Power Co. at approximately 2 cents per kwh., though this rate is somewhat lower during the summer months when the load is heavier. For standby purposes power lines are run directly from the generators of the local chemical company, which has several power-houses in continuous operation. The fact that it was not necessary to install any auxiliary power equipment naturally made possible a considerable saving in the original investment, and the arrangement has worked out very satisfactorily, as no interruption in the power supply has ever been experienced.

Character of the Water and Its Treatment

The tributaries of the Tittabawassee River, which rises in the northeast section of the state, are trout streams reasonably free from serious contamination. Some ten and twenty miles above Midland the water is impounded behind two power dams, the backwater forming two lakes of considerable size and capacity, varying in width from ¼- to ¾-mile and about 10 miles long. The lower dam is some 10 miles above the Midland intake, and the country between is well-drained farm land with a considerable drop in level. These two facts tend to give the intake waters some rather peculiar intake characteristics. In case of continued rains, or more characteristically at the time of the spring break-up, there is a short period when the water exhibits the customary flood-water symptoms of high turbidity, and bacterial load, difficult flocculation, etc. This last but a short time, however, sometimes less than half a day, or until the water in the streambed below the dam has passed the intake. Then follows a considerable period of normal reaction, and finally, as the flood waters replace those previously in the reservoir, a second but less acute period of the reactions previously encountered. Once these conditions are recognized, they are readily anticipated and really give very little trouble.

Water Analysis and Treatment

The incoming water contains from 100 to 200 p.p.m, calcium bicarbonate or its equivalent and has a total hardness of from 115 to 225 p.p.m. The turbidity varies from 5 to 300 p.p.m. and there is present at all times an excess of from 2 to 7 p.p.m. carbon dioxide. Upon entering the coagulating basins, the equivalent of 6 grains of lime as hydrate and from ½ to 1½ grains of alum per gallon are added. If no lime is added, it is necessary to add about 6.5 grains of alum for proper flocculation. The incoming water has a pH of about 8.6, and the required pH for optimum floc formation is either 6.5 or 10.6. The addition of a slight excess of hydrate gives the higher pH and a consequent ready flocculation and at the same time gives the softening effect so desirable for a hard water. From the standpoint of dollars and cents alone, however, it is considerably more economical to soften the water than to produce a potable water by the use of alum alone.



THE MIDLAND, MICH., FILTRATION PLANT AND SUPERINTENDENT'S HOME

1. Front view of the plant. The Dorr clarifier is in the wing on the left with the settling tanks beyond. 2. Rear view of the plant. The filter house is in the rear with the settling tanks on the right and the clear, well storage in the foreground. 3. The superintendent's house adjacent to the plant

Operation of the Settling Basin

In the Midland plant the clarifier is housed in a 30 x 30-foot wing of the plant with the water entering the room through apertures in one wall and leav-

ing the room through similar apertures in the opposite wall. As first installed, the water upon leaving the coagulating basins found its way into a trough suspended from the wall of the clarifier room and discharged from the trough through a series of 4-inch holes in the bottom of the trough. Theoretically, the incoming water entered at a level below the discharge level and at the opposite side of the room. The water then was supposed to take an upward as well as a horizontal direction, and the solids were supposed to settle out during the horizontal flow and accumulate in the bottom of the tank. Unfortunately, such was not the case. Discharging the water through the small openings in the bottom of the distributing trough gave a rather high velocity and a swirling motion to the water as though it were discharged from a nozzle. The fact that something was amiss was evidenced by the appearance of "boiling spots" on the surface of the water, and these cut down the efficiency of the clarifier considerably, especially as they generally appeared at the discharge side of the clarifier while a comparatively quiet section was in evidence immediately alongside the distributing trough. Varying the level of the water in the clarifier seemed to have some beneficial effects, but on the whole the efficiency of the apparatus as a unit was quite unsatisfactory in spite of changes in operating technique.

Clarifier Efficiency Increased

The difficulty was finally solved by cutting down the side of the distributing trough and blanking the holes in the bottom, so that the incoming water entered the clarifying chamber as a thin sheet and flowed horizontally across the room. This decreased the velocity head considerably and effectually prevented the formation of boiling spots and eddy currents. The efficiency of the clarifier was improved some 40 per cent, with a consequent increase in the length of filter runs due to the decreased load and a considerable decrease in the amount of wash water used. It became apparent that since the rate of settling was a function of the velocity head and that this was affected by the drop in level across the clarifier, a small drop in level and a small velocity of flow were desirable and would give conditions for the maximum efficiency at a given rate of pumpage.

After making a number of trials it was found that if the water-levels were kept about 4 inches above the discharge baffles at the outlet, maximum settling developed. With a 4-inch section of water above the discharge baffle—the basin being 30 feet across and the rate of pumpage 2,000,000 g.p.d—the average velocity across the clarifier for optimum settling was 16.5 feet per minute. Velocities less than this did not seem to improve the settling rate, while higher velocities did reduce the settling rate markedly. Previous to the change in the introduction of the influent water and the control of the velocity, the average efficiency of the clarifier was about 55 per cent and the change raised this to about 70 per cent, while at times it attained 85 per cent, depending on the amounts of solids present, and the rate of pumpage. The average incoming water carries about 200 p.p.m. solids when entering the clarifier, and from 20 to 50 p.p.m. when leaving.

Length of Filter Runs

The increase in the efficiency of the clarifier of course decreased the load thrown upon the filters, with a consequent increase in the length of the filter runs. The average length of the filter runs was tripled, rising from 25 to about 75 hours between washings, while individual runs of 200 hours and more have been made without any apparent decrease in the capacity of the plant as a whole. The average length of the filter runs for August, September, and October, 1928, was 104 hours, and the water used was 0.42 per cent of the total pumpage, which is considerably below the average of most published data. It is apparent that the efficient operation of the clarifier is a very important item in the economical operation of the filtration plant.

Settling Tank and Filter-Bed Operation

The effluent waters from the clarifier carry an average content of 30 p.p.m. solids on entering the settling tanks, which have a capacity of 283,000 gallons. At the normal rate of operation, this would mean a retention period of about 5 hours, but for a great part of the year the plant has considerably more than the needed capacity, so that the actual retention period is considerably longer than this. This means a high rate of settling efficiency and a consequent low filter burden, as the turbidity of the settled water is rarely more than 10 p.p.m. and averages much lower. The settling tank is built in the form of an L and lies about one corner of the building. It has so far been necessary to drain and wash the settling tank only twice a year.

The filter beds, four in number, have a capacity of 500,000 g.p.d. each at a filtering rate of 115,000,000 gallons per acre per day. The beds are back-washed directly from the high-pressure mains, the 128,000-gallon storage tank giving a fairly uniform washing rate. The rate of washing is 21-inch rise per minute, and a 3-minute wash is generally sufficient to wash the bed thoroughly even after long filter runs. The gravel layer is 1.25 feet deep, the sand layer 2.5 feet, and there is 1.6 feet of freeboard space between the sand and the edge of the trough. The effective size of the sand is 0.48 mm. and the uniformity coefficient is 1.45. Although no recarbonation is employed, no objectionable incrustation has as yet been noticed, though the plant has been in operation more than two years.

As the clear well when full is within 7 feet of the filter level, it has not been possible to maintain a uniform rate of filtration throughout the day, and consequently it is sometimes necessary to wash a filter before it has reached its maximum loss of head. The maximum obtainable is about 9 feet, but this decreases as the level in the clear well rises, though even under this handicap the average filter runs are such that the plant operates with a low rate of wash water.

The clear well is concrete-covered and has a capacity of 670,000 gallons, and when full gives a 7-foot head on the intake of the high-pressure pumps. These pumps of 750, 1,000, and 1,400 g.p.m. respectively are automatically controlled and maintain a level in the standpipe which gives a pressure of from 48 to 52 pounds on the city mains. By shutting off the storage tank from the mains it would be possible to raise the pressure somewhat by direct-connecting the pumps, but a considerable saving in power is made by the system used, as the consumption during a large part of the day is below the rated capacity of even the smallest pump.

Operation and Service

The operation of the plant, maintenance of the distribution lines, and collection of the revenue derived from the sale of the water, are centralized under the Superintendent of the Department. The necessary analytical and control work is done in the laboratory by the Superintendent while the plant operator works the afternoon and evening shift. The maintenance crew consists of one man and a truck and such hourly labor as is necessary from time to time. This crew also works on street maintenance, while the meter reading is done on a piece-rate basis, under the direction of the Superintendent. This gives a rather economical division of the plant overhead, which in a small plant is oftentimes a comparatively large item on the cost sheet. The maintenance of 24-hour service by two men is made possible by the fact that the city-owned home for the Superintendent is adjacent to the plant and is equipped with an electric alarm which eliminates the necessity of a night operator.

Slums and the City Plan

A Plea to Make Slum Clearance and Replotting an Integral Part of Every City Plan Which Deals With an Already Existing Community

By EDITH ELMER WOOD, PH.D.

THE city planning and housing movements in most European countries are so closely intertwined that this relationship is taken for granted. In the United States they have had separate origins and run generally parallel courses without much contact except in the field of zoning. This is regrettable from every point of view. Slums unfortunately exist, and we cannot get rid of them by ignoring them.

An American city plan concerns itself largely with street and traffic problems. It aims to provide efficient circulation. It also deals with parks and playgrounds and with the location of public buildings. When it gets to zoning, it has to think about homes, their neighborhood, height, bulk, light and air, but its only concern is with the homes of the future. Where a new town is being laid out, this is all that is necessary. In an old community with an unregulated past, it is tragically inadequate. A cancer patient needs a surgical operation, however true it may be that prevention is better than cure.

What is a slum? The word is at once unscientific and offensive. It should undoubtedly go into the discard. But it is so short, descriptive and easy-to-say that we shall probably go on using it. Subnormal housing sounds colorless, and the British official term "unhealthy areas" is even more vague. A slum, then, is a dwelling, a group of dwellings, or a whole district, which is injurious to health, morals or family life. So defined, about a third of our people live under slum conditions, more or less acute. To present the data to prove this would lead us too far afield, but the proof is available. The definition covers bad conditions in great cities, small towns and wholly rural areas. Most Negro families, a majority of the foreign-born, and millions of native white Americans live in homes which hurt them physically and psychically.

Four Conditions Which Breed Slums

Slums may be due to any one of four conditions, which it is necessary to distinguish sharply if we are to have clear thinking on the subject. In individual cases, two or three, or even all four, may be present together.

1. We have slums produced by faulty layout—too narrow streets or too large blocks inviting courts, alleys and rear tenements. The North End of Boston offers a classic example of both types, while the inhabited courts and alleys of Washington and old Philadelphia illustrate the effect of over-generous blocks. Better city planning could have prevented all this, but only clearance and re-plotting can cure.

A FEW MINUTES OF SUNLIGHT IN THE "COURT" OF ONE OF NEW YORK'S "OLD LAW" TENEMENTS

2. Bad structural plans of the dwellings themselves may be the trouble. Where they cover too much of the lot and have dark interior rooms or dimly lighted rooms opening on small interior courts, there is ordinarily no cure but demolition. The most conspicuous example is afforded by the old "railroad" tenements of lower New York (built before 1879), which run from street to rear yard, four to eight rooms deep, with windows to the outer air in the front and rear rooms only. Proper housing or building codes, or zoning ordinances, prevent such conditions in future buildings, but cannot cure them where they already exist.*

3. A great deal of bad housing is caused by disrepair. Here the landlord is primarily responsible, but the tenant should in some cases share the blame.

4. The last group of housing evils are due to the tenant. They include (a) overcrowding and (b) uncleanliness, which are frequently referred to by

*Structural inadequacies consisting of lack of proper toilet or bathing facilities may ordinarily be remedied without demolition where water-mains and sewers exist.

Photographs on this page by courtesy of State Board of Housing, New York

HOURS OF SUNLIGHT IN THE SPACIOUS LANDSCAPED COURT OF THE AMALGAMATED CLOTHING WORKERS COOPERATIVE HOMES

A striking example of what can be done, even in the city of New York, in providing modern, low-cost apartments for wage-earners

THESE CHICAGO BUILDINGS WERE DEMOLISHED LAST YEAR TO MAKE

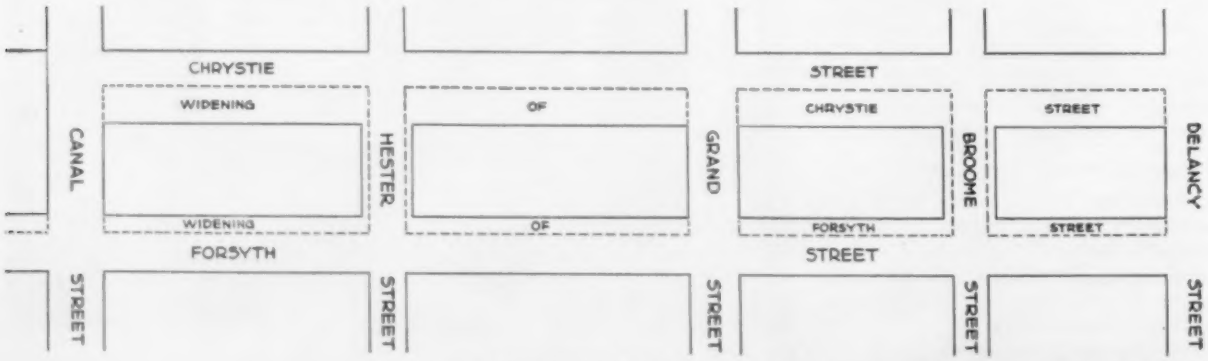
A MODEL OF CHICAGO'S LARGEST HOUSING, PROJECT, RECENTLY BUILT BY THE ESTATE OF
For rentals of $13 to $16 per room, tenants get advantages

those who should know better as if they were the only factors in bad housing. Obviously, tenants have no responsibility whatever for headings 1 and 2, and in many cases they have none for 3.

Where the Responsibility Lies

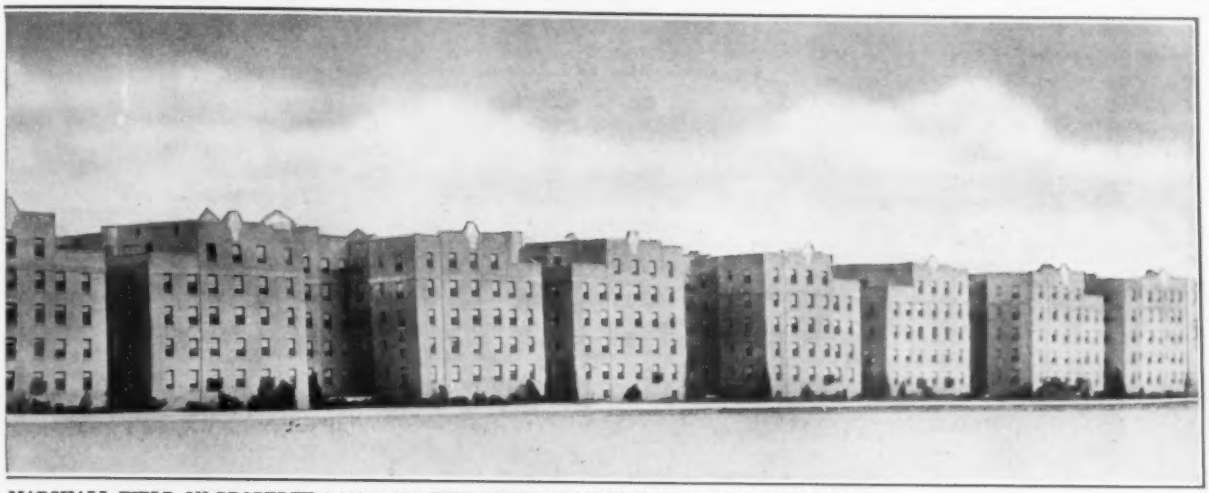
City planners cannot be expected to concern themselves with such matters as are summarized under 3 and 4. It is for health and housing authorities to enforce repairs and cleanliness and to prevent overcrowding. Visiting housekeepers, the schools and the public press must be relied on to build up gradually a better standard of hygiene within the home.

With the residuum, however (slum conditions produced by faulty layout or by faulty structural plans in respect to light and air), the city planner ought to concern himself very deeply, for he alone holds the key to the solution. It is strange that his imagination has been so little stirred by the opportunities offered. A slum section is a liability to a community from every point of view—physical, mental, moral, industrial, economic. It does not tend to rehabilitate itself through the ordinary workings of supply and demand. The people who live in slum sections cannot afford to pay a profitable rent on new houses. Therefore none are built for them. Nor will better-to-do people move into such neighborhoods. The New York Commission of Housing and Regional Planning calculated that, on the basis of the 1909-1925 rate of demolition, it would



THE STREET-WIDENING PROJECT HERE SHOWN WAS APPROVED BY THE BOARD
The entire property between Chrystie and Forsyth Streets is to be purchased by the city under its excess condemnation powers. The the erection of model apartment houses on a limited dividend basis. These strips will be only about 125 feet wide, and about 100 feet wide be left through the center

WAY FOR THE MARSHALL FIELD GARDEN APARTMENTS, SHOWN BELOW



MARSHALL FIELD ON PROPERTY 1,000 x 256 FEET, WITH ACCOMMODATIONS FOR 628 FAMILIES
not ordinarily found in apartment buildings priced much higher

take the "old law" (pre-1901) tenements of New York 138 years to disappear. When we are told that the average life of a building in the United States is something like 25 years, such reference is not to slum sections, where stagnation is the rule, but to the regions of most rapid development, such as those occupied by costly skyscrapers.

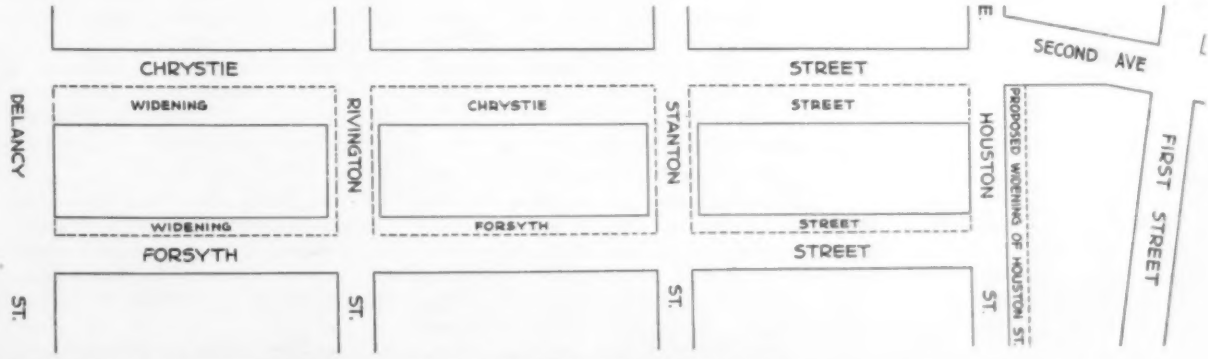
The writer's thesis is that the only cure for slums of classes 1 and 2 lies in municipal clearance schemes, and that these should form, not isolated activities of the health and housing departments, as is necessarily the case in Great Britain under existing town planning limitations, but an integral part of every city plan which deals with an already existing community.

Slum Clearance—What Is It? Does It Pay?

It will be useful at this time to consider: What is slum clearance? Where is it? Does it pay?

Slum clearance is the acquisition by city or other authorities of slum areas declared injurious to public health or morals, followed by demolition and a new layout of streets and open spaces. Usually, the same authority builds new accommodations, on the site or elsewhere, for as many persons as have been displaced by the clearance. This is mandatory in Great Britain.

Slum clearance, undertaken as a health measure, is found in many European countries, but especially in Holland and the United Kingdom. Liverpool and



OF ESTIMATE AND APPORTIONMENT OF THE CITY OF NEW YORK, JUNE 27, 1929
existing tenement houses will be demolished. It is hoped to lease the remaining strip of land in the seven blocks to private capitalists for their length will range from 241 to 391 feet. To prevent overcrowding, it has been suggested that a crosswise strip of each block for purposes of light, air and recreation

London have the longest and largest experience, but Glasgow, Manchester, Birmingham, Amsterdam, Rotterdam and The Hague all have much to teach us.

Whether it pays or not, in the larger sense, depends on the extent to which the displaced tenants are gotten into the new houses. Where they are scattered and lost track of, the advantage is doubtful. One locality has been improved at the expense of others. The technique of retaining old tenants in new houses has improved much since 1900. Under present-day methods, only a small part of a clearance scheme is torn down at once. The tenants are moved, without expense to them, into temporary quarters owned by the city, which are popularly known in England as "decanting stations," whence they are moved back when the new houses are ready. In Holland, especially at Amsterdam and The Hague, a definite educational use is made of the interval.

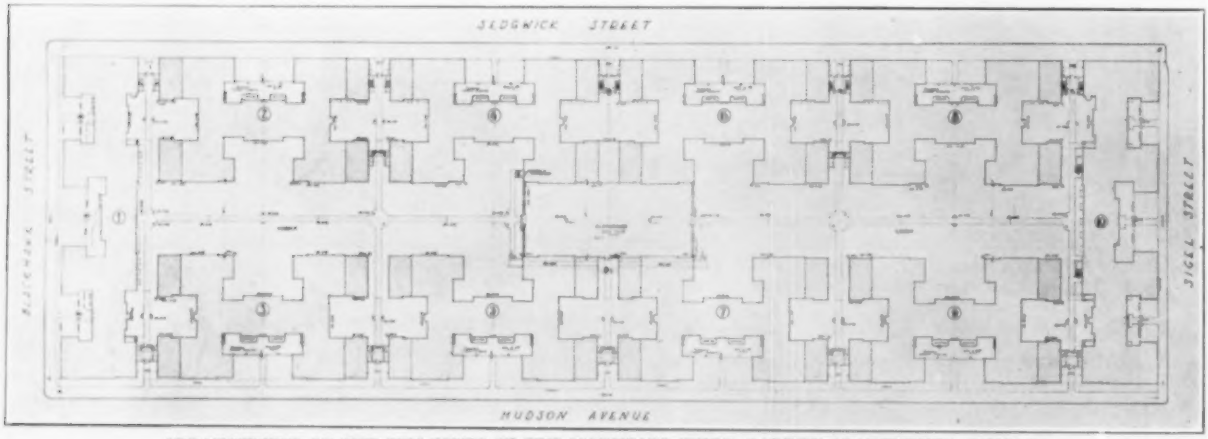
housing 46,000 persons, at a total net cost to the taxpayers of £2,393,000. For the 23 post-war schemes, involving a similar global area (98 acres), but displacing only about 28,500 people, the cost of acquisition, clearance and road work is estimated at £1,259,250. The re-housing operations will involve some subsidy, which was not the case before the war, but the National Government will share the burden with the London County Council. Altogether, for a measure which halves the sickness- and death-rates of the population immediately affected, and which reduces those of surrounding areas by lessening the number of infection centers, it cannot be considered excessively costly.

Decentralization and Re-housing

Ideally, a large slum clearance scheme could be linked with a decentralization scheme to their great mutual advantage. In practice, it has never, so far, been done. If the industries employing part of the residents in a slum section were moved to a satellite garden town offering good housing to the workers, many more would follow if they were being simultaneously dispossessed at home than if it was all pull and no push. Those remaining on the site could be better housed than would otherwise be possible, and surplus land could be sold for business or other purposes, reducing, if not wiping out, the cost of the improvement to the taxpayers. In addition to which, the transplanted families would be far better off than if they had remained.

No instance of slum clearance with re-housing has yet occurred in the United States. Minor slum clearance may be said to have taken place where a small park or playground has been established as much for the sake of getting rid of bad houses and bad layout as of obtaining the breathing space. Cases in point were Mulberry Bend Park in New York, Willow Tree Alley in Washington, Morton Street in Boston and Hell's Half Acre in Philadelphia.

The Boston City Planning Board some years ago—1919—prepared a plan for the improvement of the North End, which would have combined considerable slum clearance with cutting through a broad new traffic street from the Charlestown Bridge to the Wholesale Market. In addition, several narrow streets were to be widened, several dead-end streets prolonged, interiors of blocks filled with rear tenements were to be cleared, and several small parks and playgrounds were to be established. No re-housing was involved. Even so, despite the strong endorsement of the Mayor, many civic bodies and some real estate interests, the Legislature failed to approve of the plan; despite which, several parts of it have been carried out piecemeal since that time. Morton Street and its playground, which had an earlier origin, but formed part of the plan, has already been mentioned. Baldwin Place Extension became the site of



ARRANGEMENT OF THE TEN UNITS IN THE MARSHALL FIELD GARDEN APARTMENTS, CHICAGO

British Experience

Where the same population returns to the new houses, carefully kept vital and social statistics, before and after, show the extent, in a few years' time, to which health and behavior have improved under better environment. Liverpool statistics have shown this in the past with special clarity. Death-rates and sickness-rates are cut in two and anti-social behavior, as indicated by arrests, even more strikingly reduced. As a recent Glasgow report expresses it, 90 per cent of the families react to their new surroundings in a satisfactory manner.

Viewing clearance schemes as health measures, they undoubtedly save the taxpayers more in hospitals, asylums, reformatories and relief than they cost. And the amount of that cost is often exaggerated.

Take London. It had carried out before the war 35 slum clearance schemes, involving 97½ acres, displacing and re-

the first Community Health Unit established under the will of the late George Robert White. A third portion of the plan, known as the Webster Place improvement, is now under way. This is opening-up a neighborhood playground in a very congested district. Webster Place was an exceedingly narrow thoroughfare. The adjoining blocks were packed with rear tenements, many of them frame structures constituting a serious fire hazard. These have been razed, as well as the buildings bordering on Webster Place, letting in the sunlight to surrounding homes.

If the North End plan had been adopted and carried out as a whole, it might well have introduced slum clearance to city planning in the United States, albeit a type without re-housing.

New York's Projects

In recent years New York has been fairly seething with projects for getting rid of its slums, but few of them have

had much connection with city plans. The important provisions of the State Housing Act of 1926 deal with problems of finance—limited dividend housing companies, limited rentals and tax exemption — and with compulsory acquisition of slum property.* The Heckscher-Walker scheme involved the use of excess condemnation for the city to acquire slum areas in connection with street-widening projects.†

In the spring of 1928 the United Neighborhood Houses of New York adopted a report, prepared by their Advisory Housing Committee, which proclaimed, among other things, that:

"A permanent City Plan Commission should be established, with a mandate to consider housing as one of its major problems. . . . Slum clearance should be included in the city plan and carried out gradually like any other large improvement project. It is vastly more important than the elimination of grade crossings, for instance, though the lives sacrificed by bad housing are not quite so easy to count."

About the same time, June, 1928, appeared the report of the Subcommittee on Housing (Lawrence Veiller, Chairman), of the vast Committee on Plan and Survey appointed by Mayor Walker, which had this to say:

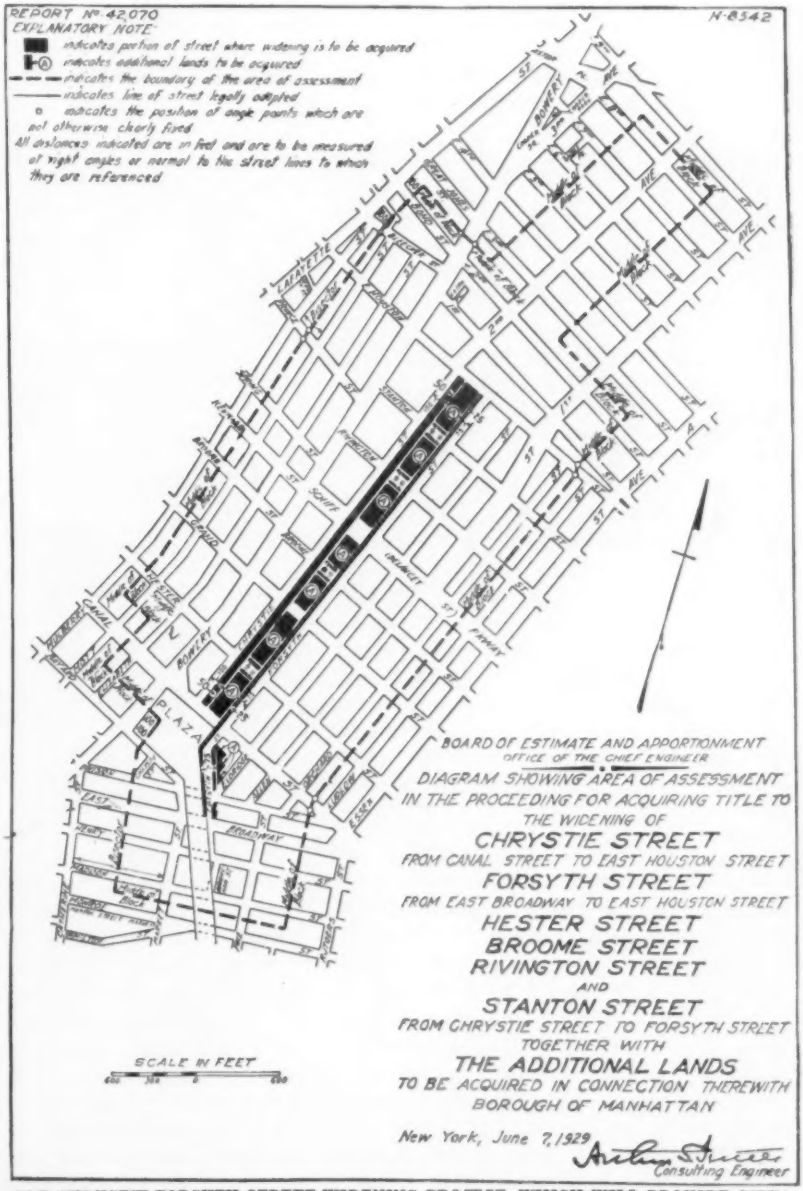
"The one phase of housing that has had the least attention in this city and the one that is perhaps most urgently needed is that of slum clearance. Before doing anything, the location and extent of the areas it is desired to clear should be determined. These will be found not limited to the East Side nor even to the borough of Manhattan. . . . Whatever is done should be closely related to a comprehensive city plan. . . . In some cases the cleared areas can be best devoted to permanent open spaces—to small parks and playgrounds; in others, public buildings. In others, such cleared spaces may be best utilized for increased traffic facilities, for new streets and street widening. . . . One thing is certain. If slum clearance is to be carried out, it should be in orderly and intelligent fashion. It cannot be done as an incident to street improvement, as now contemplated . . . though excess condemnation powers can be utilized. Areas should be cleared only after a 'finding' by the duly constituted authorities that either (a) the area is an insanitary area, or (b) that the public interests require its demolition. A special 'authority' should be constituted for the purpose, if slum clearance is to be done on a large scale. . . . Maps should be prepared showing the property to be taken, and property owners affected, as well as other citizens, should be given their day in court with opportunity to object and to state their views. . . . The special authority should also determine whether to sell off, or lease, part of the land acquired, to be used in new housing and on what terms. It would also determine to what extent the cost of the scheme should be borne, in part, by assessment for benefit on property benefited and the extent of the area of benefit. Specific powers should be obtained from the Legislature to enable the city to undertake slum clearance schemes."

All of which are words of wisdom, which will, we hope, be heeded. But let us take heed also of the half-century's experience in slum clearance available for our study across the water. And let us recognize from the start that slum clearance will fail of attaining its principal objects—better health and better homes—if it does not provide new accommodations for those whom it displaces, and at rentals they are able to pay. This cannot be done on the basis of private enterprise for commercial profit, but in view of our much-heralded prosperity, it ought to be possible to do it without subsidy. If not, our people might still be wise to tax themselves for good housing instead of for hospitals and jails.

*See "Better Housing for New York's Wage-Earners," by George Gove, in THE AMERICAN CITY for May, 1929, page 164.

† EDITORIAL NOTE.—This method seems likely soon to be tried out in a modified form in connection with the Christie-Forsyth street-widening scheme illustrated at pages 94, 95 and 97.

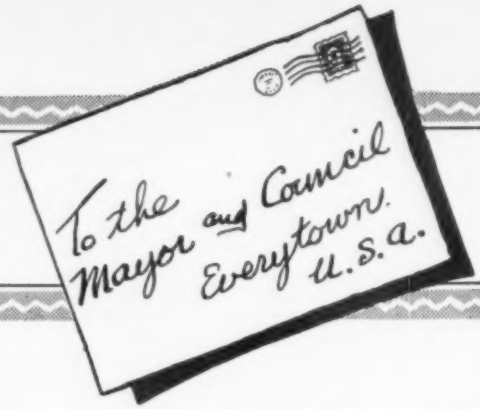
How New York City Spreads Its Assessments for Street Widening


REPORT No. 42,070
N-8542
EXPLANATORY NOTE
indicates portion of street where widening is to be acquired
indicates additional lands to be acquired
indicates the boundary of the area of assessment
indicates line of street legally adopted
indicates the position of angle points which are not otherwise clearly fixed
All distances indicated are in feet and are to be measured at right angles or normal to the street lines to which they are referenced
BOARD OF ESTIMATE AND APPORTIONMENT
OFFICE OF THE CHIEF ENGINEER
DIAGRAM SHOWING AREA OF ASSESSMENT
IN THE PROCEEDING FOR ACQUIRING TITLE TO
THE WIDENING OF
CHRYSTIE STREET
FROM CANAL STREET TO EAST HOUSTON STREET
FORSYTH STREET
FROM EAST BROADWAY TO EAST HOUSTON STREET
HESTER STREET
BROOME STREET
RIVINGTON STREET
AND
STANTON STREET
FROM CHRYSTIE STREET TO FORSYTH STREET
TOGETHER WITH
THE ADDITIONAL LANDS
TO BE ACQUIRED IN CONNECTION THEREWITH
BOROUGH OF MANHATTAN
SCALE IN FEET
New York, June 7, 1929
Consulting Engineer

THE CHRYSTIE-FORSYTH STREET-WIDENING PROJECT, WHICH WILL PROVIDE SITES FOR MODEL LOW-RENT APARTMENTS

This is referred to in the editorial note to the preceding article. Of the cost of the widening, exclusive of the cost of additional lands for model housing, 30 per cent is to be borne by the city at large, 40 per cent by the Borough of Manhattan, and 30 per cent by the local area of assessment shown above

A MONTHLY OPEN LETTER



August 1, 1929

Honorable Sirs:

THIS is customarily a hot time of the year, but it is also an important one. It is not only the season of budget-estimating for cities whose fiscal year runs with the calendar year, but it is also time for school repairs. It is the time of the year when schools are empty of their busy denizens and the painters and carpenters can get their inning. But the problem of school equipment is more than blackboards and benches. It seems curious, looking back, how little change there had been in school paraphernalia from the days of Babylon and Athens to the little red schoolhouses where the last generation learned its letters. The clay frame and wax had given way to pencil and slate; for older scholars, paper and pen had supplanted papyrus and stylus; while the standard equipment of teachers comprised in addition a ruler or switch.

But we've changed all that. This is the machine age. Not that education is being mechanized—it is being machinized. Its tools are expanding. To take one of the newest innovations—a few daring schools are installing tiny typewriters for even the smallest tots. This sounds far-fetched—but just a minute. Physiologists have demonstrated that the smaller muscles of the fingers are among the last to be sheathed. We can use and coordinate our arms before we gain the same control over our fingers. This is the basis of the new blackboard writing for beginning-youngsters before they can grasp pencils. The next step is to give access to the typewriter before the child writes by hand. Then when he subsequently learns to wield a pencil, his handwriting is not cramped for life as by the old method. Watch the adults about you clutching their fountain pens as if they were the great big pencils their six-year-old fingers could scarcely manage.

OR if you prefer something rapidly passing beyond the experimental stages, we have the classroom motion picture and radio. Consider the prose description of the Panama Canal in even the most up-to-date geography, and compare this with a film that shows Culebra Cut and a vessel going through the locks and in an animation picture two ships sailing from New York. Side by side they move along until they near the Canal, then one turns west and, passing through the Canal, soon reaches San Francisco. The other is meanwhile pressing on toward Cape Horn, and it does not arrive at San Francisco until sixteen days after its sister ship. The classroom "movie" is no longer a toy. It is an integral part of the instruction in many progressive schools. No one is suggesting that it should take the place of books, but it can do certain things books cannot do, and it plays a big part in arousing interests that can be satisfied only through books.

The radio is somewhat younger, but many cities, large and small, are fitting up classrooms to receive programs. It is estimated that several thousand classes listen on Friday mornings to the Damrosch concerts. Countless numbers heard President Hoover's inaugural address, and one meticulous little girl took Chief Justice Taft to task for a variation from the formal oath. The radio, of course, is very young. There are many problems concerning its classroom use that are only beginning to be studied. The most extensive utilization of the school plant is provided by the platoon system. The questions raised by it would, however, carry this poor correspondent into the middle of next month.

IN the planning of new schools, a wholly different set of problems arise. The old emphasis was entirely on architectural specifications, with too little attention to educational specifications. Careful thought was given to physical stresses of the building, but little was bestowed upon the stresses and strains of its occupants. In a sense this is an insoluble problem. Any school building decently built will surely last thirty years and will probably be structurally sound at forty. But education is an ever-changing and growing process. No one suggests that an educational plan could be drawn up today which would not require a general overhauling within forty years, or appear as antiquated and grotesque as the mansard roof with which our fathers adorned school edifices. A few things would, however, seem elementary.

BESIDES adequately accommodating the regular personnel of pupils and teachers without overcrowding or unnecessary waste-space, the school must be equipped to house all school activities—curricular and extra-curricular. Secondly, while it may not be possible to anticipate the changes which another generation of research and experimentation will produce, we may safely expect them to be in the direction of more intensive specialization. One need only consider such developments as the cardiac, consumptive and malnutrition classes, the wood-working and metal-working shops, the classifications now made of subnormals and the constellation of activities housed in the gymnasium and auditorium (or theater, if you will), to see where the future is pointing. It is important in small cities where bond issues are devoted to the building of particular schools that some reserve be set aside for alterations which the future alone will disclose. Too frequently the entire fund is absorbed in the original building.

LASTLY, the school belongs to the community. It is incumbent upon it to provide facilities for any community activity which will not interfere with the school's educational function. Its auditorium may well

develop as the public forum. Its gymnasium is an appropriate place for public dances under non-commercial auspices. There is nothing more helpful to school morale or more stimulating to popular interest in the school and its work than the bringing of adults to the school building. Just watch them scanning the wall exhibits of student handiwork.

Yours cooperatively,

HINTSAND POINTERS.

Municipal Ambulance Service in Relation to Public Safety

INTERESTING data on the operation of municipal ambulances and their relation to public safety work have been compiled by THE AMERICAN CITY from replies of city officials to a comprehensive questionnaire.

Aproximately 200 municipalities of all sizes and located in every section of the United States supplied information, and, while agreeing generally on certain phases of the ambulance question, they disagree widely on others.

Municipal ambulances are being operated in 110 of the cities reporting. With but few exceptions, the larger cities operate one or more municipal ambulances, while practically all of the smaller municipalities rely upon private ambulance service. The Police Department is usually the one to furnish the service if it is municipal. Not only do the police operate ambulances in 80, or more than three-fourths, of the cities which have them, but that department would be favored to do so by nearly all of the cities lacking such service, should they decide to establish it.

Other Departments Operating Ambulances

In eleven municipalities, the city hospital operates the ambulance; in eleven other places, the Fire Department does so; in five, the Health Department; in two, the Welfare Department; and in one, the Public Safety Department. Only nine of the cities expressing their opinion as to which municipal department might best perform this service, named the Fire Department. In the opinion of 22 city officials, however, both the Police and Fire Departments should operate ambulances, if the city is large enough to justify it.

All but 14 of the 200 cities expressed the belief that municipalities might well offer ambulance service to persons injured by fires or street accidents. The few not favoring such a policy, offered their small size as the chief reason.

A marked difference of opinion was found on the question of whether or not it is feasible for the police or fire department to operate a vehicle which would be a combination patrol wagon and ambulance. Just twice as many, or 86 cities, replied in the affirmative to this query as did in the negative. Nevertheless, the replies in many instances were elaborated upon and very definite reasons given why that type of ambulance would or would not prove satisfactory. Of the 110 cities operating municipal ambulances, however, 40 are using the combination type. Most of the city officials filling out the questionnaire seemed to feel that a combination ambulance and patrol is usually just the thing for the smaller municipalities desiring to afford city ambulance service, but that the larger cities should operate complete ambulances.

A HENNEY AMBULANCE IN SERVICE IN MILWAUKEE COUNTY

Opinion Divided on Value of "Combination" Type

R. D. Gambrell, Fire Chief at Dallas, Texas, is opposed to the combination vehicle and suggested that under such a system, the ambulance might be transferring a drunken man while being used as a patrol car, when it was needed to save a life. Police Chief James E. Corcoran of Joliet, Ill., stated that "the springs on an ambulance are not heavy enough for patrol service, while the springs on a regulation patrol car are too heavy for ambulance duty."

As one of the few officials in favor of assigning municipal ambulances to the Fire Department, Fire Chief R. E. Pitts, of Tulsa, Okla., wrote:

"In a majority of cases where men are assigned as drivers in the Fire Department, they are capable and efficient drivers and well acquainted with all parts of the city. Changes in the Fire Department are fewer than in the Police Department and consequently experienced drivers can be kept on the job at all times."

Almost without exception, however, those cities using combination patrol and ambulance cars reported them to be satisfactory. Miami, Fla., is evidently one of the few large cities, though, that prefer such service to be given by private firms. H. H. Arnold, Director of Public Safety of that city, wrote that Miami furnished municipal ambulance service through its Police Department for three years at a cost of $15,000 a year, but is not doing so now. He questioned the wisdom of this policy when "undertakers will furnish service free of charge."

Expense Is Consideration in Small Cities

The usual situation in the smaller cities was aptly characterized by M. C. Russell, Director of Service and Safety of Marietta, Ohio, who replied: "In small cities, as a rule, the police and fire departments are confined or limited to just as few men as possible on account of the problem of financing these departments. I am therefore of the opinion that the ambulance service rendered by undertakers is just as satis-

factory, and in many cases of accidents it is an undertaker who is needed."

Other opinions offered regarding the general problem of ambulance service were that a combination car might be suitable for police use but not for the Fire Department, that the City Health Department might well supply such service, and that the extent of municipal ambulance service and the number of ambulances should be dependent upon the population of the particular municipality.

First Aid Training Fairly General

All but 20 of the 200 cities give some attention to the training of policemen or firemen, or both, in first aid relief work. In the majority of instances, however, this instruction is very scanty and includes simply a few of the more important features of first aid treatment. In those cities where only one department is given such training, it is usually the Fire Department which is so favored. Many of the officials expressed themselves as desirous of extending this first aid and accident training, and most of them believe that it is essential to the effectiveness of both the police and the fire department. The 20 places where no instruction is being given along this line are very small, and the official responding indicated that he did not feel that work to be essential to the proper functioning of the public safety departments.

Fire Department First Aid Squads

An interesting development in several of the resort cities of Monmouth County, N. J., has been the formation of first aid and safety squads as adjuncts to the local fire departments. The first unit of this type was established among the volunteer firemen of Belmar, N. J. This squad, which responds to all kinds of emergency and accident calls, has a well-equipped first aid car. The ambulance carries inhalators to be used in artificial respiration work; twelve tanks of oxygen; smoke and ammonia masks; hot and cold water bottles; electric pads; blankets; a full supply of all kinds of splints, bandages and medical prescriptions for burns, cuts, breaks, etc.; flexible stretchers for removing patients from cramped quarters; life-preservers for drowning cases; rope; iron bars for raising overturned automobiles; and a variety of other appurtenances. Because of all this equipment, however, the ambulance does not carry a wheel stretcher.

ONE OF THE INTERNATIONAL HARVESTER COMPANY AMBULANCES USED BY THE CHICAGO FIRE DEPARTMENT

J. Raymond Bergen, secretary of the Belmar squad, writes that among the other New Jersey resort boroughs now carrying on such work are Spring Lake, Keyport, Neptune, Long Branch, Asbury Park and Sea Girt. Each of these towns either has an ambulance, similar to the Belmar first aid car, or is planning to acquire one. In most instances, the funds for purchasing an ambulance have been obtained through private subscriptions, although the borough officials are reported to be strongly in favor of the work and in some cases ready to contribute to its support.

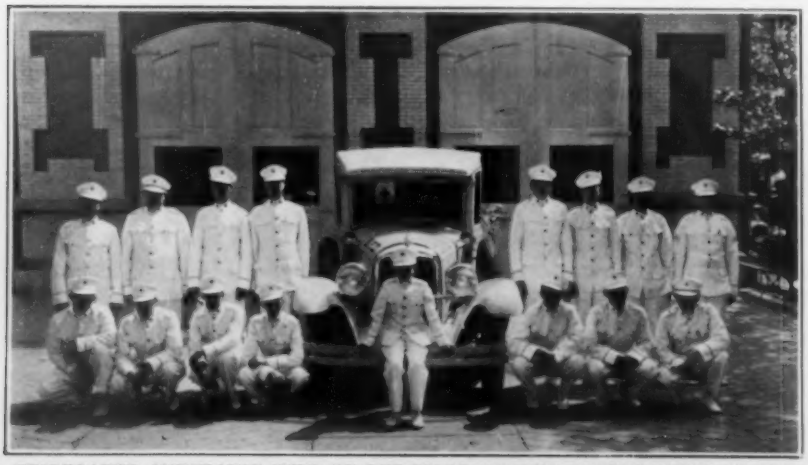
The Belmar Squad members, and other groups that master the first-aid work later, were issued instructors' certificates by the National Red Cross. At the end of each year, a report on their work goes to the mayor and commissioners of the borough, the Monmouth County chapter of the Red Cross and the national headquarters.

New York City Plans Changes

Additional ambulances and a centralized system of ambulance service are contemplated for New York City by Hospital Commissioner Schroeder, according to a recent announcement.

The Commissioner would ask the Board of Estimate for a substantial appropriation to purchase 100 new ambulances and arrange with Police Commissioner Whalen to place this service directly under the control of the Police Department. Under the present plan, calls to police stations for ambulances are relayed to hospitals supplying public emergency service, entailing considerable delay in most instances. Commissioner Schroeder would have the city divided into more nearly equal ambulance districts and the cars stationed, so far as possible, in police garages.

Recently, the Commissioner placed the 68 ambulances now available for public emergency service, on a 24-hour operating schedule. Prior to this order, these conveyances were on a 12-hour schedule, so that only 34 of them were available during the day or night. Since January 1, 1929, the city has been paying private hospitals supplying this service, $3,000 per year per ambulance, instead of $2,500 as in the past.



STUDEBAKER AMBULANCE USED BY THE FIRST AID AND SAFETY SQUAD OF THE BELMAR, N. J., FIRE DEPARTMENT

A Well-built Parkway Road for Through Traffic

By WILLIAM J. DOUGHERTY
Secretary-Engineer, Park Commission, Portland, Maine

BAXTER Boulevard, in the Portland, Maine, park system, is an important connecting link between two of the largest and most popular areas in the system, namely, the Eastern Promenade, overlooking Casco Bay with its numerous islands, and the Western Promenade, with its outlook on the White Mountains. This boulevard, which is being resurfaced with asphalt macadam, skirts the shore of a large tidal basin and is approximately 2.33 miles long. The surface to be paved is 48 feet wide and is flanked with esplanades, shade trees, footwalks and ornamental planting.

THE NEW ASPHALTIC MACADAM CONSTRUCTION ON BAXTER BOULEVARD, SHOWING A SECTION COMPLETE IN AUGUST, 1927

Immediate Reconstruction Necessary

The parkway has been in process of development for many years and progress has been limited to what could be wisely set aside out of current appropriations from year to year. Baxter Boulevard has come to be such an important pleasure traffic artery across the city that the Park Commission recently voted to undertake immediately the complete improvement of the park roadway under a deferred payment plan by issuing upwards of $100,000 in bonds. The estimated cost of the improvement is $110,000, and serial bonds will be sold as funds are needed to complete the work. Because of local traffic conditions which demand the use of this parkway in midsummer, construction will be spread over the period from April, 1929, to July, 1930, with stoppage of the work during midsummer. This will mean that a long period will be required to do the work, as the spring, early summer and late fall months are not the best seasons in which to do satisfactory asphalt macadam construction in the Portland area.

Portion of Work Already Completed

A small section of this roadway has already been paved, including 2,600 linear feet completed out of current funds during 1927 and 1928. The remaining distance of 9,800 feet is to be done under the bond issue. When completed, there will be approximately 62,660 square yards of improved roadway surface. The area already surfaced is 15,383 square yards and has cost $34,002.61, or an average of $2.21 per square yard.

A SECTION OF BAXTER BOULEVARD, PORTLAND, MAINE, IN 1920 JUST PRIOR TO MAKING THE FIRST GRAVEL ROADWAY

Methods of Construction

The asphalt macadam wearing surface is nominally 3 inches thick and is supported on a crushed stone foundation of local crushed rock on the excellently compacted bituminous-treated gravel which has served traffic for several years. The crushed stone base course would average a compacted thickness of about 3 inches, and the voids in this stone course are thoroughly filled with stone screenings or coarse sand. The wearing course of the short section already completed is constructed of commercial 2-inch crushed trap rock penetrated with 1.75 gallons of asphalt per square yard, and the interstices of this 3-inch rolled and penetrated course is filled with ¾-inch trap chips and thoroughly rolled. After rolling, any surplus chips are removed and the seal coat of asphalt is applied at the rate of 0.75-gallon per square yard. This application is covered with ½-inch pea stone chips and the surface finally rolled. Asphalt of 85-100 penetration has been used on the work thus far. This material was furnished and applied from large pressure distributing trucks by the Standard Oil Co. of New York through the local distributing station.

The cost of the oil asphalt applied was 11½ cents per gallon. The 2-inch imported trap rock cost $2.55 per ton f.o.b. cars Portland, Maine, the ¾-inch size, $2.70, and the ½-inch size, $2.85. This stone was imported from Swampscott, Mass., a distance of about 90 miles. To these unit stone costs, f.o.b. cars, there is added the cost of 75 cents per ton for unloading and hauling to the

A PORTION OF THE BOULEVARD IN THE LATE FALL OF 1928, SHOWING THE PRELIMINARY WORK PREPARATORY TO THE CONSTRUCTION OF ASPHALT MACADAM PAVEMENT IN 1929

The clay shoulder excavation has been completed and the refill of stone base and gravel is under way. The center strip of bituminous-treated gravel is to serve as a base for the new pavement

mechanical stone spreaders on the work

Pavements Standardized

The type of surface pavement already completed will be the standard for the remainder of the work done during 1929 and early 1930, and, in view of the fact that the quantities of material involved on construction to be done will be larger than heretofore, a reduction in stone costs and transportation costs of stone to the job are looked for. The actual road building from the point where the stone is delivered to the work by the hauling contractor was done by the labor forces of the Park Commission under the supervision of the writer.

The construction to be done presents no unusual features. The surface water drainage systems were put in several years ago. All general grading has been done and the present roadway is a path of coarse gravel of compacted thickness varying from 8 to 18 inches. Since the traveled path of bituminous-treated gravel is only 27 feet in width for the most part, it has been necessary to excavate the soft shoulder areas on either side and refill with proper foundation material to a total width of 48 feet. One of the illustrations shows work of this character being done at "Brown's Point" in the late fall of 1928. The sides were excavated so as to allow for 9 inches compacted thickness of foundation stone and coarse gravel.

There is a decided advantage in doing work of this kind at least a full winter season in advance of finished surfacing. There is a certain seasoning resulting to the foundation that only the elements can produce and no amount of forced compaction can bring. In the spring of 1929 it was only necessary to scarify the old traveled path and reshape the entire width to the new section. On top of this prepared gravel surface a macadam base course is being constructed, to support a 3-inch asphalt macadam wearing surface similar to the construction already described.

Curb and Gutter Construction

The sectional development of the roadway constructed this year differs in one detail. Whereas the section already completed has been constructed (the full 48-foot width) of asphalt macadam, all future work will have a 3-foot gutter of portland cement grouted granite blocks for surface water. This gutter is laid on a sand cushion on the compacted gravel fill and the joints filled with cement grout.

The curbing will be formed by laying on end the largest of the paving blocks and these to a slope of 1 inch in 4 inches. On account of the lack of longitudinal center line roadway grades, it is necessary to take care of surface-water drainage by "peaking" the gutters between inlet basins. As a result of this, the depth of gutter varies from 4 inches at certain drainage division points to 12 inches at inlet basins, and with the block curbing there will be an exposed granite face varying from 4 inches to 7 inches, since 12 inches will be the maximum length of the blocks and it will be necessary to bed the blocks the depth of the gutter paving, which will be 5 inches. From the top edges of the upright paving stones forming the curbing, the lawn turf will be rolled back to form a gentle slope.

A 48-FOOT-WIDE NEWLY PAVED ASPHALT MACADAM SURFACE AT HANSON'S CREEK, BAXTER BOULEVARD

Utilizing Space Under Raised Railroad Tracks

THE parallel retaining walls usually erected in cities where railroad tracks are elevated, and filled with earth, with occasional openings at street intersections, are often a sheer economic waste, according to E. E. Duffy of the Portland Cement Association. Mr. Duffy points out that such space, frequently valued at $250 or more per running foot, may be made available through simple and economical construction of supporting columns and deck, and may be effectively used for business, parking, and automobile traffic arteries.

As an example of the first use he mentions space beneath the electric elevated lines in the Wilson Avenue section of Chicago, which has been successfully converted into business property. As an excellent example of the second he mentions the East Orange, N. J., station of the Lackawanna Railroad, where parking places for a large number of cars have been arranged beneath the elevated tracks. "Engineers point out that where four tracks are elevated, the ground under the superstructure is about 60 feet wide. With the proper spacing of the supporting columns, at least three cars can be parked for each 8-foot length. The yearly income from this 8 feet of land would be equivalent to the annual interest income from three or four thousand dollars," in addition to its convenience to motorists.

"This 60-foot width could also be utilized as a thoroughfare for automobiles," Mr. Duffy continues, "with room for two or three lanes traveling in each direction. With traffic congestion in many cities costing almost unbelievable sums, it is entirely logical to expect cities and railroads to cooperate for such usage."

System Applied to Meter Setting and Meter Records

By E. G. WILHELM

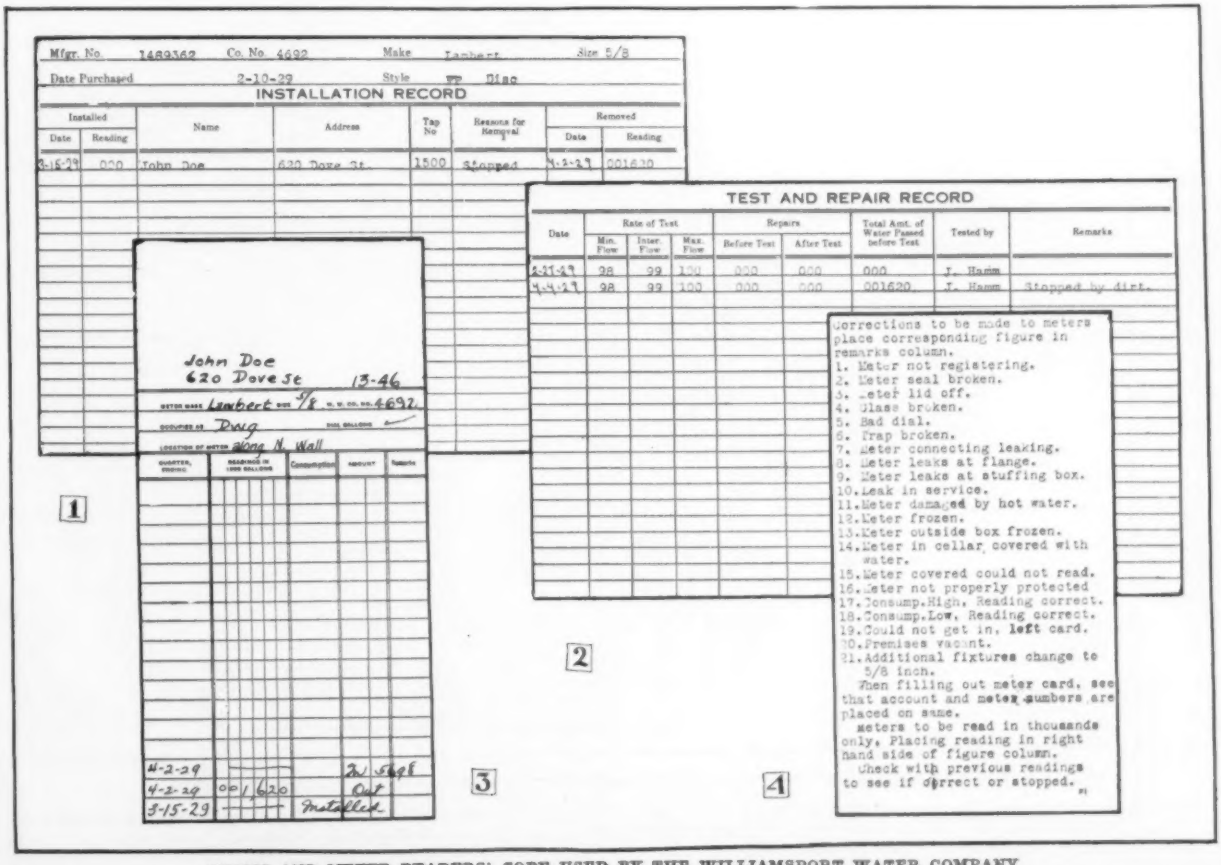
VICE-PRESIDENT, WILLIAMSPORT WATER CO., WILLIAMSPORT, PA.

THE Williamsport Water Co. was organized in 1853. From that time until 1921, service was rendered on a flat-rate basis to domestic and commercial consumers, only the industrial consumers being metered, and this class of consumer constituted approximately 6 per cent of the total for a great many years. Prior to 1921 it was apparent that the per capita consumption was far in excess of what a reasonable consumption should be, according to the experience of water companies where meters had been installed. Some years prior to 1921, venturi meters had been installed at all points where water was delivered to the distribution system. In this way it was possible to determine the daily per capita consumption, which was approximately 200 gallons. The demand in 1921 so nearly approximated the available supply that it was necessary to do one of two things, namely, either secure an additional supply of water at very great cost, or conserve the available supply by the installation of meters.

After a thorough and careful investigation it was decided that the prudent thing to do was to meter all consumers. The wisdom of this decision is well borne out by the fact that the daily per capita consumption was brought from 200 gallons in 1920 to 116 gallons in 1928, and established the fact that the present available supply will be adequate for many years to come.

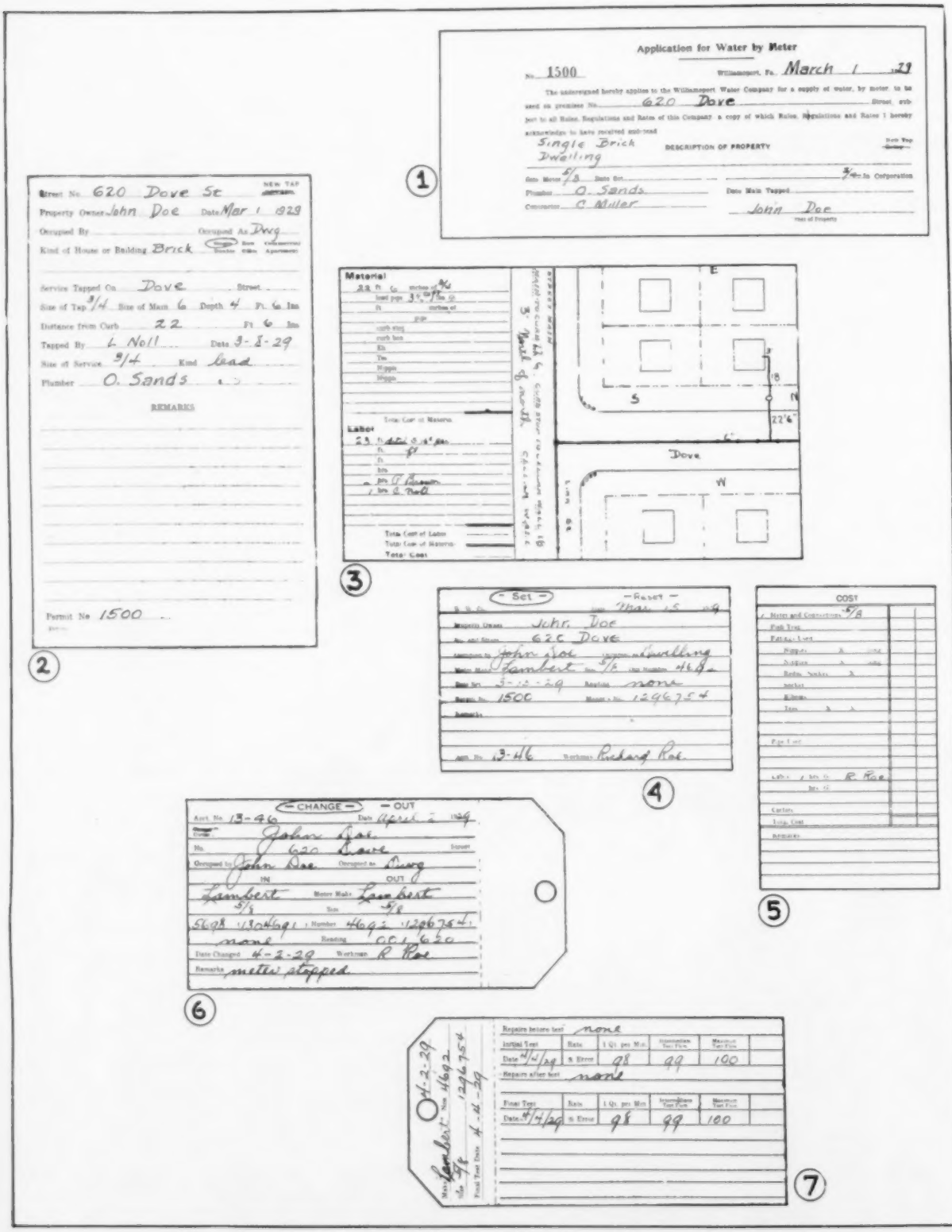
Outline of System Employed

The smaller meters for domestic consumers are purchased in lots of 100 to 300. They have the name of the maker, the factory number, and the company number all in conspicuous places. When the meters arrive, they are carefully checked for quantity, factory number, and company number. As soon as they are checked they are tested in batteries of six, and the test is made under practically the same conditions as when the meters are in actual service. A meter card is then made out for each meter, giving all the information as to make, factory number, company number, size, date of arrival, record of test; and when the meter has been set, the record gives the address, location of the property, cost of setting, cost of removal, reason for removal, cost of repairs, name of employee doing the work, and, in fact, a complete history of the meter from its arrival until it is worn out. In conjunction with this record a street index file is kept which gives the name of the property owner or tenant, the address, the meter number, and the account number; this provides a source of instant information in case any question arises relative to any metered property. All


Mfgr. No. 1489362 Co. No. 4692 Make Lambert Size 5/8
Date Purchased 2-10-29 Style Disc
INSTALLATION RECORD
Installed Date 3-15-29 Reading 000
Name John Doe
Address 620 Dove St.
Tap No 1500
Reason for Removal Stopped
Removed Date 4-2-29 Reading 001620
John Doe
620 Dove St 13-46
Lambert 5/8 4692
Doug
along N. Wall
4-2-29 2/5698
4-2-29 001620 Out
3-15-29 Installed
1
TEST AND REPAIR RECORD
Date
Rate of Test Min. Flow Inter. Flow Max. Flow
Repairs Before Test After Test
Total Amt. of Water Passed before Test
Tested by
Remarks
2-21-29 98 99 100 000 000 000 J. Hamm
4-4-29 98 99 100 000 000 001620 J. Hamm Stopped by dirt.
2
Corrections to be made to meters place corresponding figure in remarks column.
1. Meter not registering.
2. Meter seal broken.
3. Meter lid off.
4. Glass broken.
5. Bad dial.
6. Trap broken.
7. Meter connecting leaking.
8. Meter leaks at flange.
9. Meter leaks at stuffing box.
10. Leak in service.
11. Meter damaged by hot water.
12. Meter frozen.
13. Meter outside box frozen.
14. Meter in cellar covered with water.
15. Meter covered could not read.
16. Meter not properly protected
17. Consump. High. Reading correct.
18. Consump. Low. Reading correct.
19. Could not get in, left card.
20. Premises vacant.
21. Additional fixtures change to 5/8 inch.
When filling out meter card, see that account and meter numbers are placed on same.
Meters to be read in thousands only. Placing reading in right hand side of figure column.
Check with previous readings to see if correct or stopped.
3
4

FORMS AND METER READERS' CODE USED BY THE WILLIAMSPORT WATER COMPANY

Left: Front and reverse of the meter history repair and test card. Center: The meter reading slip. Right: The code which is posted in the meter readers' books



FORMS USED FOR SERVICE AND METER RECORDS BY THE WILLIAMSPORT WATER COMPANY

1. Application blank which is made out in duplicate. 2 and 3. Front and reverse of service line history card. 4 and 5. Front and reverse of combination Meter Set and Reset card. 6 and 7. Front and reverse of combination Change, Out, Test and Repair card

meters have the manufacturer's number on top of the lid, while the company number is stamped on the inside of the lid and on the flange of the meter. Each size, excepting the ⅝-inch meter, is designated by a letter placed on the front of the meter. For example:

No letter	⅝-inch
A	¾-inch
B	1 -inch
C	1½-inch
D	2 -inch
E	3 -inch
F	4 -inch
G	6 -inch

Meter and Meter Service Record Forms

Application.—When a request is made for a service line, the property owner is required to make an application. Application blanks are made up in duplicate in pads of 50. The original copy is retained and the duplicate is given to the applicant.

Service Line History Card.—After an application is made, a service line history card is filled out. If it is a new property, a meter "Set" card is filled out giving the name of the property owner, the street and number, the style of building, the nature of occupancy, and the permit or application number.

Service lines are installed in the order in which application is made. After the installation of the service, upon return of the card a meter "Set" card containing full information is then given to the meter setter, who sets the meter and returns the card. The account number is then placed upon the card, which, for example, is 13-46, which signifies District No. 13, Account No. 46.

Combination Meter Set and Reset Card.—For the original installation of a meter the combination card is used as a meter "Set" card, and if the meter has been removed for any reason and is to be reset later, the combination card is then a "Reset" card. The cost of installation, including labor and materials, is recorded on the reverse side of the card.

Combination Change, Out, Test and Repair Card.—When a meter is removed because it has stopped registering and is immediately replaced by another meter, the information is recorded on the combination "Change" and "Out" card, and would be a "Change" card. If the meter is taken out and service discontinued, then the combination card is used as an "Out" card. The test and repair record will appear on the reverse side of this card. When a meter is taken out of service, the combination "Out" or "Change" card is attached to the meter until it has been repaired and tested. The card is then detached from the stub, the stub remaining with the meter until it is again placed in service. The data on the stub indicate how long the meter has been out of service, and if it is a considerable period and there seems to be sufficient reason, the meter is again tested before being put into service.

Meter History and Repair and Test Card.—This is a meter history report and test record card. One of these cards is made out for each meter installed, and the information for it is obtained from the meter cards "Set," "Reset," "Change," and "Out." The complete history of the meter will appear on one side, and the test and repair record on the reverse side.

Meter Reading Slip.—A meter reading slip is made out after the Addressograph plate has been made up. It will show on the line at the bottom of this slip the date the meter was installed, and the location of the meter on the property will appear on the upper part of the slip.

Code.—This is a code which is designed to cover whatever conditions may be encountered by the meter readers. If a frozen meter is found, code number 12 is placed on the meter reading slip opposite the current reading. The code is pasted to the inside front cover of the meter reading book.

Filing

Applications are kept in book form in numerical order and are thus filed.

The history service line cards are filed alphabetically as to streets and in sequence as to numbers.

After the information is placed on the history, repair and test record card, the "Set" and "Reset," "Change" and "Out" card, they are then ready for filing. A different size card is used for each record, and they are filed in sequence as to the company meter numbers.

From the "Set" card a visible index card is made up which shows the name of the street and number, and the number of the account. The "Set" card is then given its classification number, designating whether it is a domestic, commercial, or industrial consumer. From the "Set" card an addressograph plate is made up giving the name of the consumer, address, meter number, and account number. From the addressograph plate the consumer's ledger sheet is also made up, as well as the meter reading slip.

Meter history, repair, and test record cards are filed by size and number. The consumers' ledger sheets, meter-reading slips, and addressograph plates are all filed as to district and account numbers, starting with District No. 1, Account No. 1 and following consecutively through to the end.

Pennsylvania Cities Increasing Appropriations for Local Planning Work

A COMPREHENSIVE list of appropriations made by city councils in Pennsylvania for the work of local planning commissions indicates definitely that increased financial support is being given the commissions by the various city governments.

Twelve of the 20 cities included on the list released by Francis J. Mulvihill, Chief of the Division of City Planning and Municipal Engineering, State Department of Internal Affairs of Pennsylvania, appropriated more for city planning in 1928 than in 1924, the figures show. Wilkes-Barre appropriated the same amount in both years, and Oil City, which set aside nothing for planning in 1924 or 1928, has appropriated $3,000 for 1929.

Seven cities which made no financial provision for city planning in 1924 made substantial appropriations for the work last year. Allentown increased its appropriation from $1,500 in 1924 to $7,000 in 1928; Altoona, from nothing to $3,000; Bradford, from nothing to $1,000; Chester, from nothing to $1,500; Easton, from $300 to $1,600; Harrisburg, from nothing to approximately $2,000; Lancaster, from nothing to $7,000; Pittsburgh, from $46,195 to $106,774; Reading, from $440 to $4,000; Sharon, from nothing to $5,500; York, from $3,000 to $4,000; Erie, from nothing to $2,000.

The six cities spending less in 1928 than in 1924 were: Bethlehem, reducing from $3,000 to $1,500; Duboise, from $3,500 to $3,000; Johnstown, from $4,000 to $1,500; Meadville, from $500 to $200; New Castle, from $2,000 to $1,000; and Scranton, from $2,800 to $1,000. Most of these cities, however, already have accomplished considerable in the city planning field and reduced their appropriations, usually because there was no immediate necessity for spending as much as in 1924. Where figures have been given for 1929 among cities in this latter group, however, Du Boise is found to have increased its appropriations from $3,000 last year to $4,000 this year, and Scranton is spending $1,500 as against only $1,000 in 1928. It is significant that not one of the 20 cities listed has ceased to appropriate funds for city planning work once this policy has been adopted.

These 20 cities together appropriated approximaely $155,000 for their city planning commissions last year as against a total of but approximately $68,000 in 1924. The figures presented here will be included in a new bulletin entitled "Planning Whys and Otherwise," which Mr. Mulvihill is preparing and editing for the Pennsylvania Association of Planning Commissions. It will be based chiefly on the annual meeting of the Association and will be distributed by the State Department of Internal Affairs. Mr. Mulvihill will be glad to receive copies of the budgets and appropriations for city planning commissions in every section of the country.

Precept vs. Practice

Courtesy of New York Herald Tribune. Copyright, 1929.

American Cities Need Leadership, But They Need Citizenship Cooperation and Civic Education Even More

To the Editor of THE AMERICAN CITY:

"Hintsand Pointers" in your April issue lays the index finger on our basic problem. Would we adopt and carry into execution a planning scheme or any of its elements, such as zoning or a system of playgrounds and parks or what not, we need more than a beautifully pictured suggestion of what, as Arnold W. Brunner said in 1912, "not only *could not* be executed but which *should not* be executed."

The reason we get these "could not" and "should not" schemes is because we "let George do it." The people will not go into the work and keep close enough to the heels of the able technical man to get reasonable results out of him. Some technical men persist in giving sound advice regardless of conditions, while others give only as little as they can get away with.

As your Monthly Letter points out, we are living in a democracy that does not "democ." What is the reason? Mainly, I think, because we are so shot through with the autocracy of the past ages that we in the main refuse to govern ourselves. We look for leaders. If they chance to be good, very well. If they are bad, we scold but we do nothing effective. In either event it is rule by an autocrat and not democracy.

Joseph Lee thirty years ago put his finger on our defect when he said:

> "The sovereign people have asserted their intention of hereafter attending to this business of lawmaking for themselves. The trouble is that, having taken upon his own shoulders the direct work of legislating, King Demos has then proceeded to go about his own private business, exercising his sovereign power only on great occasions, and for the rest of the time leaving upon our hands that most dangerous article of furniture, a vacant throne. Our king feels, and justly feels, so strong in his power to take up the reins whenever he chooses to come back, that he has become careless as to who shall hold them in his absence. Private corporations and other persons with interested motives, and the paid lobbyists who represent them, have climbed into the vacant seat; sometimes, even, the throne is occupied by that most grotesque figure that ever played the ape with the royal insignia, the political boss."

We have a long way to go, apparently, before we shall be willing to actually provide rule by the people. King Demos as an absentee is just as much of a failure as any other absentee who allows his proxy to select himself.

What we need is a mobilization of the popular mind so that consideration of local administration in all of its aspects becomes as common among the people as, for example, interest in the movies, or radio, or crossword puzzles, or scandal. Automatically we jump into these things and adhere to them as though our lives depended upon them, or at least as though they got us somewhere. While we are thus absorbed, the basic things are cared for by the "leader" for whom we constantly, in our pursuit of the democratic principle, fondly hope. And the leader always arises. He may have no "divine right" mandate but, if he is so disposed, he gets away with the goods just as effectively.

The he-man type thinks he is at he-man work when he is making his business go. Isn't it equally he-man work to make the town go? The town is the home of the he-man and of the he-man's business. Incidentally it is the home of the he-man's wife and of his children. These children are largely made into citizens, or failures, by their town, by its homes and streets, its water and sewers, its parks and playgrounds, its schools and libraries. Is it a he-man's duty to be so superior that he has no time for thought along these lines? Why is it that he persistently ignores them? Why is it that he does not even consciously select the representative who is to attend to them for him?

There are hopeful signs. It is quite obvious that the planning and zoning movements are doing more than anything we have ever started to arouse an interest and an actual participation in communal affairs. Chicago, for example, doubtless offers the best example of planning under a democracy. Burnham, Wacker, Norton, Delano and others were great leaders, but they carried the people with them to an amazing degree. There are other examples, as you have intimated. There, in part, lies our hope.

But perhaps our hope lies even more in what the public schools are increasingly doing for the boys and girls of America in citizenship training and character education. It is significant that the first of a series of resolutions adopted at the recent annual convention of the Department of Superintendence of the National Education Association read as follows:

"Again we remind ourselves that our state systems of education were established in accord with the proposals of Washington, Franklin, Jefferson, and a long line of farseeing statesmen for the purpose of preserving and improving our political institutions. Again we recall that our wages are paid and our equipment provided by a tax on all the people whether or not they be parents. Thus reminded, we pledge ourselves anew to the direct teaching of the duties of citizenship in all the school grades. Not culture, not scholarship, nor self-support, nor compliance with the entrance requirements of more advanced schools shall turn us from the duty of teaching our youth the needs of our civic life and from inspiring our citizens with a determination to improve it."

We need leadership. We much more need citizenship cooperation and civic education.

EDWARD T. HARTMAN.

Boy-Power, and Its Constructive Use in Detroit

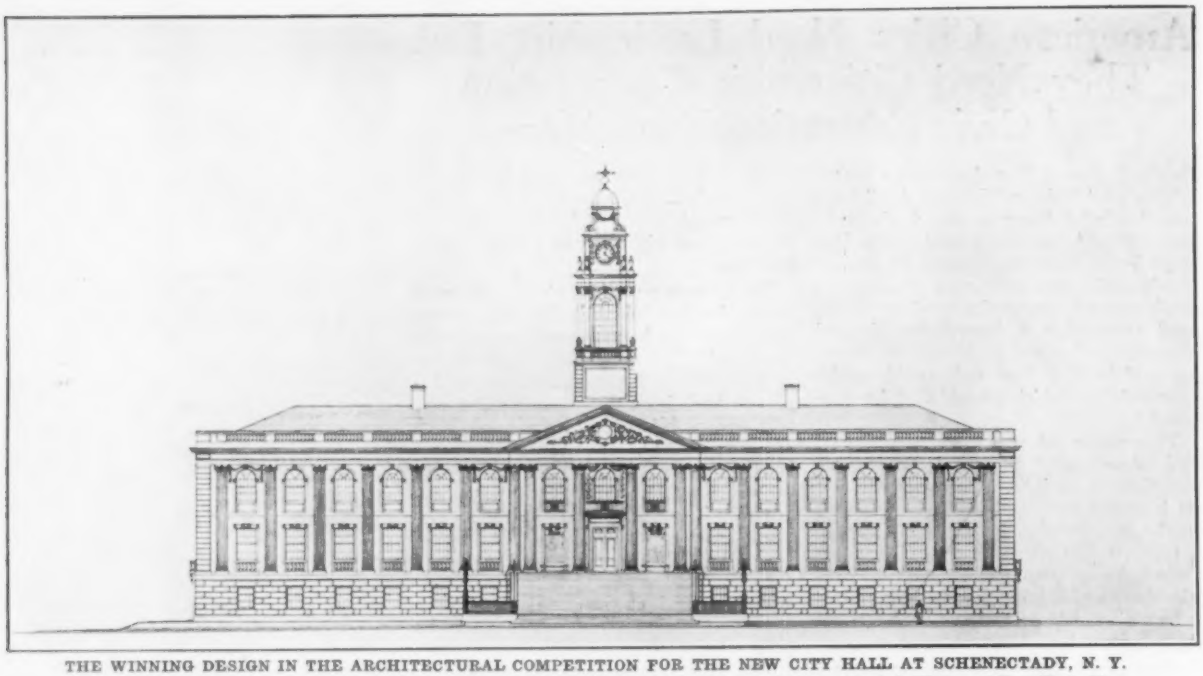
IT was no mere coincidence that a survey completed some two years ago in Detroit showed that the center of juvenile delinquency of that city was also the section in which there were 11,000 boys for whom all recreational opportunities were conspicuously lacking.

When the findings of this survey, in the making of which the Detroit Union League Club had spent two years, became known, prominent individuals undertook to finance, temporarily, a club for boys in the neighborhood—which is the crowded district around Michigan Avenue and 31st Street. Accordingly, an old cigar factory was taken over and its interior remodeled to provide library, auditorium, gymnasium, recreation, and workshop and classroom facilities. Membership was—and still is—offered for 25 cents per year for boys under 12 years old, and 50 cents per year for boys over that age. Young gangdom suspended activities to investigate this phenomenon, and a considerable portion of it stayed to "join up." There is a present membership of just under 4,000; the Boys' Club budget is underwritten by the Community Fund, and today one of the pressing problems of Detroit's welfare planning is a newer and more commodious building for this institution.

The chief elements of the program, which has entirely changed the record of the old neighborhood that used to keep the police and the courts busy, are: a variety of legitimate outlets for boy energy which formerly ran to waste and worse; and an understanding of boy psychology and its practical application to difficult situations as they arise.

There are recreation and physical training classes, and provisions for a variety of sports and games. There is a well-managed vocational training department where members may learn the rudiments of motor mechanics, aircraft, radio, carpentry and printing. Proud members make conspicuous records in city-wide athletic competitions. One of the carpentry classes recently presented the mayor with 50 bird-houses to be put up in a park; another made a large number of toys for crippled children at Christmas time. All boys are kept constructively busy. Some of the older ones have been able through their club training to take good jobs in automobile factories, where they are making creditable records.

Anti-swearing and anti-theft committees are a conspicuous part of the Club's organization. The boy who is profanest is given a responsible and conspicuous place on the former, to discourage swearing among his mates; and the light-fingered little chap is tried out on the latter, usually with very gratifying results. Once, the toughest gang of the whole district descended on the Club with the obvious idea of wrecking it, and did considerable damage before they could be stopped. But the gang leader was persuaded to stay and become a member, which he did, bringing "the gang" *en masse*, with him.



THE WINNING DESIGN IN THE ARCHITECTURAL COMPETITION FOR THE NEW CITY HALL AT SCHENECTADY, N. Y.
This conception of how the new building should look was submitted by the firm of McKim, Mead & White, of New York City

Successful Architectural Competition for City Hall Conducted Under A. I. A. Rules

By FRANK R. LANAGAN
CITY ENGINEER, SCHENECTADY, N. Y.

SCHENECTADY is soon to have a thoroughly modern City Hall, the design for which has been selected as a result of a carefully conducted architectural competition.

The present City Hall was constructed in the early eighties through the benefaction of a citizen. In later years the city purchased the adjoining building, formerly used as a hospital, remodeled it as an annex to the City Hall and still later remodeled another old building in the rear of the City Hall to house the offices connected with the Department of Public Works. In recent years the City Comptroller's and the City Treasurer's offices have been located in adjoining stores half a block away from the other city offices.

The inconvenience of having city offices in separate buildings, the hazard of possible loss by fire of valuable city records housed in non-fireproof buildings, and the blow to civic pride in the lack of an adequate municipal building were the subjects of intermittent discussions for years. It was generally agreed that there should be a new City Hall, but there was no general agreement as to its location. The year 1928 ushered a new municipal administration into office, headed by Mayor Henry C. Fagal, and under his leadership the Common Council, in April, 1929, adopted an ordinance authorizing the acquisition of a certain site and the preparation of plans and specifications for the construction of a new City Hall.

The site selected was an entire block bounded by Jay, Franklin, Clinton and Liberty Streets. The old City Hall, the City Hall Annex and the Department of Public Works building occupied about one-half of the area of this block on its southerly side. The remaining buildings on the block were old and for the most part dilapidated and in poor repair. The assessed valuation of this private property, supposedly 100 per cent valuation, was about $170,000. The city offered each property owner a sum equal to the assessed valuation plus 20 per cent for his property, and in each case it was refused, thus forcing the city to resort to condemnation. The awards of the condemnation commission made the cost of the property to the city about $262,000.

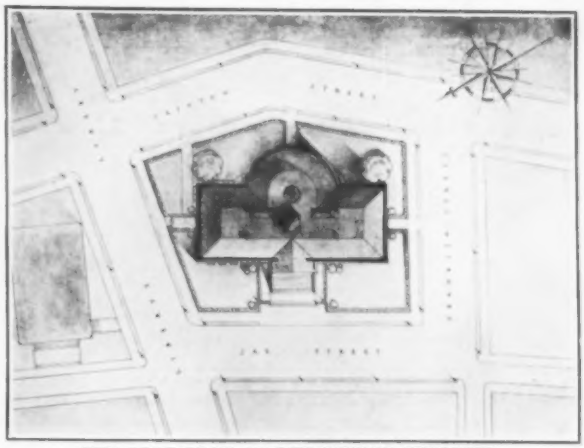
The ordinance also authorized the Board of Contract and Supply to employ an architect or architects and other technical assistants to be selected by competition or otherwise to prepare the plans and specifications for the new City Hall. The Board decided in August, 1928, that the best interests of the city would be served "by holding an architectural competition in accordance with the rules and regulations of the American Institute of Architects," and selected Charles H. Higgins, architect, of New York, as Professional Advisor to inform the Board as to the form and terms of the architectural competition, to draw up the program, to advise in choosing the competitors, to answer their questions and to conduct the competition.

Seven Architects Invited to Compete

The competition was limited to seven invited competitors, three of whom were Schenectady architects selected by the Board of Contract and Supply, and the remaining four selected by the Board of Contract and Supply from a list of eight architects nominated by the Professional Adviser. The invited competitors were authorized to take an associate. The architects so selected and their associates were:

L. Rodman Nichols and Fred B. O'Connor, Associate, both of Schenectady, N. Y.
Edward G. Atkinson, of Schenectady, N. Y., and Dwight James Baum, Associate, of Riverdale-on-Hudson, N. Y.
McKim, Mead & White, of New York
Edward S. Hewitt, of New York
Lord & Hewlett, of New York
John M. Ryder, of Schenectady, and Egerton Swarthout, Associate, of New York
Walker & Gillette, of New York

SCHENECTADY'S PRESENT CITY HALL AND ANNEX



THE PLOT PLAN OF THE DESIGN SELECTED

The program for the competition prepared by the Professional Adviser, adopted by the Board of Contract and Supply and approved by the Competition Committee of the New York Chapter of the American Institute of Architects, set forth all the terms and conditions of the competition, some of which may well be mentioned:

Terms and Conditions in Brief

The city agreed to pay each unsuccessful competitor the sum of $500 toward covering his outlay and to employ the author of the design selected by the Jury of Award as its first choice, as architect for the work.

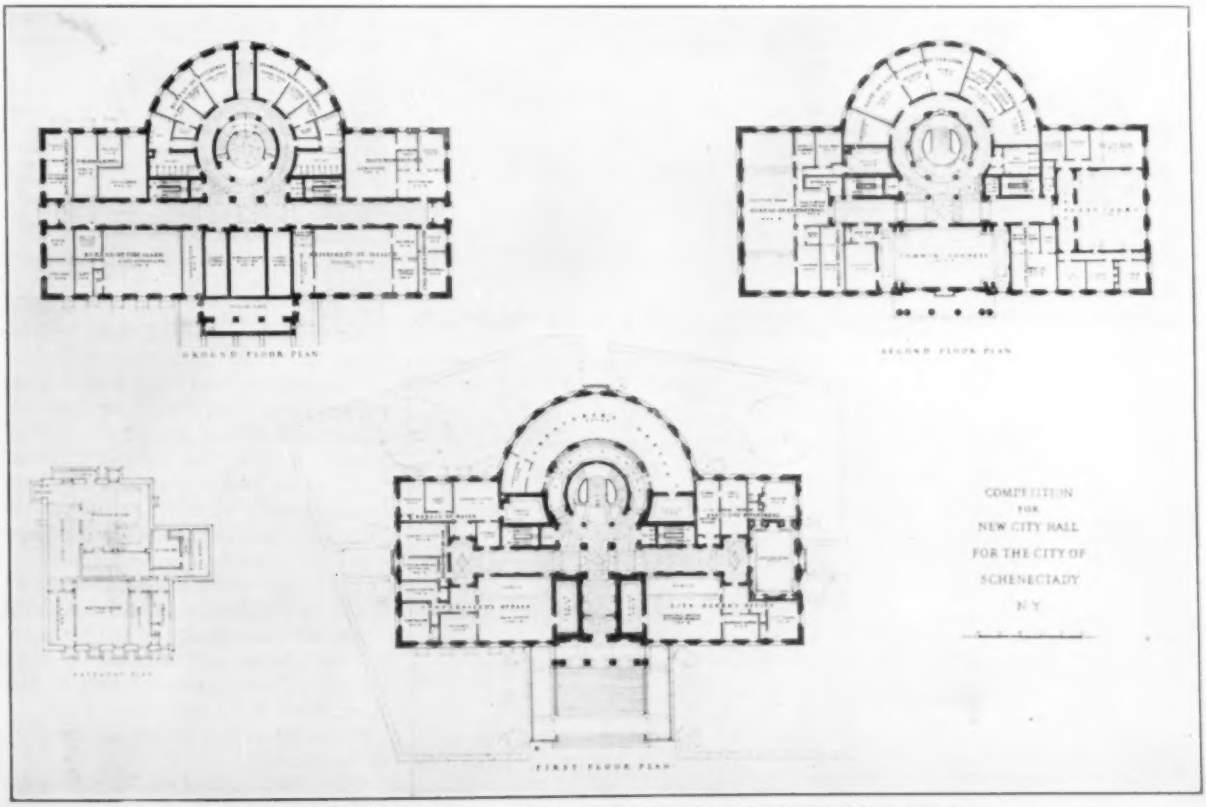
The Jury of Award consisted of three New York architects, selected by the Board of Contract and Supply, from six nominated by the Professional Advisor. Each member of the Jury was paid the sum of $200 for his services. The members of the Jury of Award were:

Chester Holmes Aldrich
Richard H. Dana, Jr.
Benjamin Wistar Morris

Each competitor was required to submit four sheets of drawings, each about 24 x 36 inches; the first sheet to have the elevations with principal entrance at a scale of ⅛-inch equals 1 foot, the second sheet to have the three remaining elevations and two sections at right angles to each other on a scale of 1/16-inch equals 1 foot; the third sheet to have the plans of the first and second floors and basement at a scale of 1/16-inch equals 1 foot; and the fourth sheet to have the plot plan indicating surroundings and extensibility at a scale of 1/32-inch equals 1 foot. The elevations were in ink line only, without washes on window openings or shadows cast. The plot plan only was rendered.

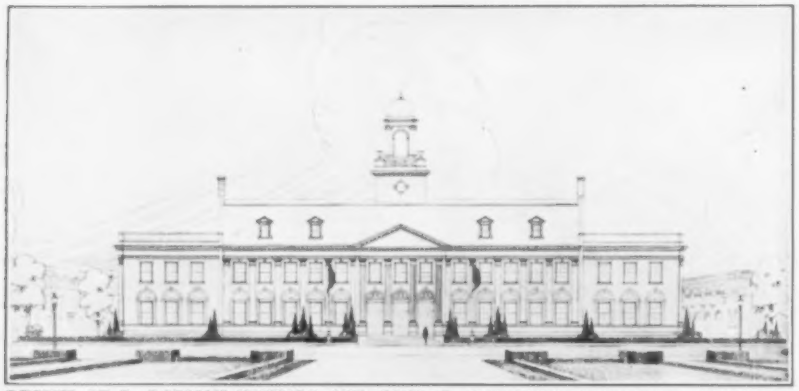
It was mandatory that the cube of the building should not exceed 1,000,000 cubic feet. A schedule was incorporated in the program giving the names and required floor areas of the offices, rooms and facilities which were to be provided for in the plans. A variance of 5 per cent in area for departments, and 10 per cent in area for rooms was permissible.

The anonymity of the competition drawings was preserved until after the Jury of Award had made its selection of the suc-



FLOOR PLANS FOR THE CITY HALL AS PROVIDED IN THE WINNING DESIGN

DESIGN SUBMITTED BY EDWARD G. ATKINSON, OF SCHENECTADY, AND DWIGHT J. BAUM, ASSOCIATE, OF RIVERDALE-ON-HUDSON, N. Y.



DESIGN OF L. RODMAN NICHOLS AND FRED B. O'CONNOR, ASSOCIATE, BOTH OF SCHENECTADY, N. Y.

DESIGN DRAWN BY JOHN M. RYDER, OF SCHENECTADY, AND EGERTON SWARTWOUT, ASSOCIATE, OF NEW YORK CITY

DESIGN OF EDWARD S. HEWITT, OF NEW YORK CITY

cessful design. Following is the paragraph in the program which provided for anonymity:

"Drawings to be submitted shall bear no name or mark which could serve as a means of identification, nor shall any such name or mark appear upon the wrapper of the drawings, nor shall any competitor directly or indirectly reveal the identity of his designs, or hold communications regarding the competition with the owner or with any Schenectady city official, or with any member of the Jury, or with the Professional Adviser, except as provided for under 'Communications.' It is understood that in submitting a design, each competitor thereby affirms that he has complied with the foregoing provisions in regard to anonymity, and agrees that any violation of them renders null and void this agreement and any agreement arising from it. With each set of drawings must be enclosed a plain, opaque, sealed envelope without any superscription or mark of any kind, same containing the name and address of the competitor. These envelopes shall be opened by the Profesional Adviser after the final selection has been made, and preferably in the presence of the Jury."

The manner of architecture and sort of materials to be used for the City Hall was fixed by the following paragraph in the program, which followed several paragraphs outlining the historical background of Schenectady:

"This, briefly, is the background for the following requirements as to the manner of architecture desired for the new City Hall. During the period from the close of the French and Indian Wars about the middle of the eighteenth century until the War of 1812, the City Fathers were in part of Dutch descent with the predominance of men of English descent, members in large part of the congregation of St. George's. Could such men, with such historical background and surrounded by such topography, have had freedom of choice which comes with prosperity? Could they have secured the services of a distinguished architect of their day and built a City Hall or Town Hall as they might have called it, it may be assumed that the architecture would meet the choice of those responsible today for the erection of a City Hall; the site being similar in shape and extent to the one described elsewhere in this program. Already, in their day a ledge of freestone has been opened, stone quarried for early buildings which still survive, several residences and St. George's Church. Good red brick were to be had from New England which continue the name of 'Harvard.' The marble quarries of neighboring Vermont offered this fine material, and roofing slates were to be had from the same state. The architectural style has been indicated, as have the principal materials available; the size and room to meet the requirements, fixed elsewhere, will naturally and properly have a modifying influence, as will modern sanitary, heat, lighting and ventilating requirements, as these are to be in no way shirked."

Selecting the Winner

The competition drawings, were delivered to the Professional Adviser at his office in New York on April 1, 1929, after which he examined them for conformance to the mandatory provisions of the program and then turned them over to the Jury of Award for their consideration. Before coming to a final conclusion as to the successful design, the Jury of Award spent one afternoon in Schenectady viewing the site for the City Hall and inspecting the architectural and other features of the city.

The author of the successful design selected by the Jury of Award was found to be, after the opening of the envelopes by the Professional Adviser in their presence, the architectural firm of McKim, Mead & White, of New York.

Following is the report of the Jury of Award:

"The Jury examined carefully the seven designs submitted and satisfied itself that

they all complied with the mandatory requirements as reported by the Professional Adviser. None of these designs, therefore, were put out of the competition, and each of the seven was carefully considered on its merits. The Jury held three different days in the library of the Professional Adviser. The award was made by secret ballot and the Jury has remained in ignorance of the identity of the various competitors. The unanimous vote of the Jury was for the design marked 'H.'"

Considerations Which Influenced the Award

The Jury based its award upon the following considerations:

The Plot Plan.—The placing of the building on the plot (which has been considered carefully even to the preserving of two old elms on the property) affords more space for landscape treatment on every side than any other of the plans submitted. The building set in a small park is thus seen to advantage from all points of view. The main entrance at which ceremonial proceedings will be held is well placed, facing west on the quiet Jay Street and is well set back from the sidewalk to afford ample space for such procedings. More important still is the relation of the building to the Post Office, affording an unbroken view of the façade of that building. With a possible future building located in a corresponding position on Franklin Street to balance the Post Office, an imposing architectural composition would be formed, making an exceptionably fine civic group.

Plans.—The general plan is compact and admirably studied, with the principal elements placed in appropriate and dignified positions, and the circulation direct and ample. The main circular staircase forms a feature of beauty and dignity, placed where it counts well from both an artistic and a practical point of view. The halls are wide and direct and the whole plan so arranged that no interior light courts are necessary. As the building is only three stories high, one elevator only is needed, the staircases sufficing for most of the persons using the building. The attic space not needed at present could with some modification be adapted for future development if that became necessary. The various requirements of the program are provided for in an economical and straightforward way, in a plan which is also scholarly and dignified.

Elevations.—The elevations have distinction and character and they show a keen appreciation of Schenectady's traditional architecture, into which they fit most appropriately. They afford ample window space for lighting the interior, at no sacrifice of monumental character. The treatment of the pilasters and of the bays between them is admirable, and the fact that this order is raised upon a basement so that it will be seen above the probable parked automobiles surrounding it, makes it count to full advantage. The perimeter of the building seems to be as small as is compatible with a well-lighted plan. The end elevations are symmetrical and excellent, and so arranged as to give interesting and monumental views of the building from various angles of approach. This is also true of the easterly side, facing on what is to boome an important thoroughfare in contrast to the westerly side fitted for appropriate ceremonies on a quiet street. Here where Clinton Street changes its direction, the curved wall presents an attractive and memorable architectural treatment. The clock tower in the spirit of the early Republic, is well studied in mass and detail. As a whole, the building has dignity, beauty, and a quality thoroughly in character with the historic traditions of the city.

"The Jury heartily approves the design from both a practical and an artistic point of view and finds it distinctly superior to the six other designs submitted, several of which, however, are of a high order of merit."

WALKER AND GILLETTE OF NEW YORK CITY ENTERED THIS DESIGN IN THE COMPETITION

Description of the Accepted Design

Following is the description of the City Hall design of McKim, Mead & White which accompanied their drawings:

"The proper orientation of the main façade of the new City Hall for Schenectady is one of the most important considerations in the design. The emphasis placed by the competition program upon the exposure of this façade and upon the possibility of traffic control during times of ceremonial proceedings, obviously requires that the building shall front either upon Jay Street or upon Franklin Street.

"Jay Street has been chosen for the main façade in the design submitted herewith because it seems to be favored both by general considerations of the city plan, and by particular advantages growing out of the relation of the building to the plot. The general westerly slope of this part of the city down towards the river gives an importance to this outlook which was recognized in the orientation of many local buildings of earlier date, particularly that of the Union College group. The development of the great Erie Boulevard has given increased importance to this outlook. The fact that Liberty Street when widened will become the approach to the City Hall from the Boulevard and the western part of the city is recognized in this orientation.

"As for the building itself, the recognition of the broad front upon Jay Street leads to a solution which is more direct and monumental, both in plan and in elevation, than is permitted by the narrow Franklin Street front, while it reserves the quiet southern outlook for the location of such important elements as the Mayor's Suite and the City Court.

"The design submitted herewith is capable of vertical expansion by carrying the secondary stairs and the elevator into what is now the attic space, and by redesigning the roof, with wide dormer windows. In this way an additional floor of office space can be developed without detriment to the appearance of the building.

"Harvard brick and Vermont marble are proposed as the building materials for the exterior walls, and Vermont slate for the roof. The design has been developed in the manner of Philip Hooker, whose work represents such an important part of the early architectural heritage of this locality."

THIS DESIGN WAS SUBMITTED BY LORD AND HEWLETT OF NEW YORK CITY

Another architectural competition, for the City Hall at New Haven, Conn., was described in THE AMERICAN CITY for September, 1928, at pages 97 to 100, inclusive.

Time Studies of Refuse Collection Activities

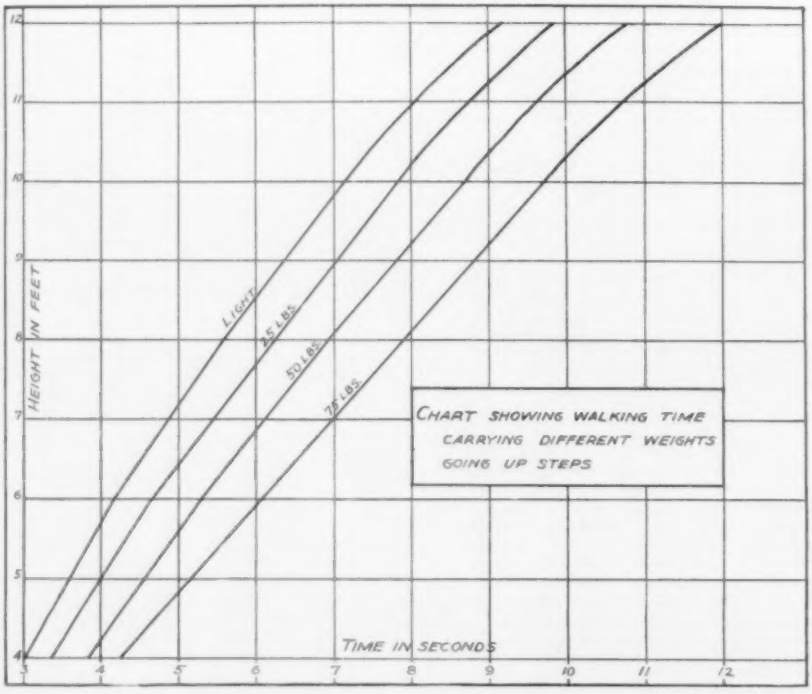
By ARCHER M. SOBY and JOHN H. NUTTALL

CHIEF, AND PRINCIPAL ASSISTANT ENGINEER, BUREAU OF STREET CLEANING, PHILADELPHIA, PA.

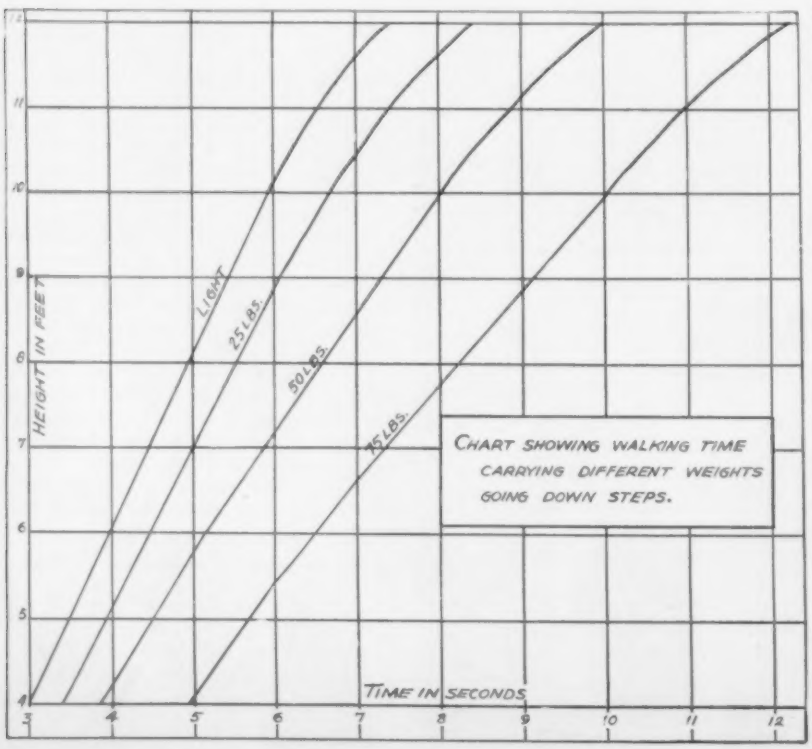
PHILADELPHIA covers an area of 124 square miles and consists of a central city surrounded by numerous suburban towns and large rural areas in the northeast and southwest. The rural areas are now being developed rapidly and it is probable that the entire area of the city will be covered with buildings within a comparatively few years.

The conditions in the closely built areas and those in which the houses are more widely separated render the time and force required for the collection of a unit volume or weight of refuse to vary considerably throughout the city. Density of population, character of buildings, unit production of refuse, and traffic, are important factors in specific localities.

A special engineering force is maintained by the Bureau of Street Cleaning for the purpose of designing collection routes, checking operation efficiency, and research. This force frequently prepares estimates for various municipal requirements, and these estimates were always based on previous performances. It was decided that a more flexible and accurate system based on unit operations of men and vehicles could be devised. Many studies of the human machine have been made, but these studies were found applicable to specific industries only or are of too theoretical a character for practical use.



An investigation of actual performances of men and vehicles was therefore made, and the time required for basic unit operations was determined. It was found that a practical system of tables and graphs could be prepared that would afford all necessary basic information for the preparation of estimates, the designing of routes, and the checking of operations. The tests may be separated into two classifications, of "Men" and "Vehicles."



Time Studies of Men

The performance of any man considered as a machine depends upon the physical characteristics of the man, the weight lifted or carried, the distance traveled and the time through which the work is continued. All work in this investigation was considered to be for nine hours, which is the average time worked by the forces of the Bureau. Five refuse collectors of various sizes and ages were used in the tests, and each operation was performed at least four hundred times. The test of each unit operation was repeated as often as necessary when any discrepancy with other unit tests arose.

The unit operations investigated and tabulated were:

1. Time in seconds required to lift and empty refuse receptacles of various weights at various heights.

2. Time in minutes required for average man to walk 1,000 feet carrying va-

rious loads and stopping at various regular intervals.

3. Time in seconds required for average man to walk up various heights of steps carrying various loads.

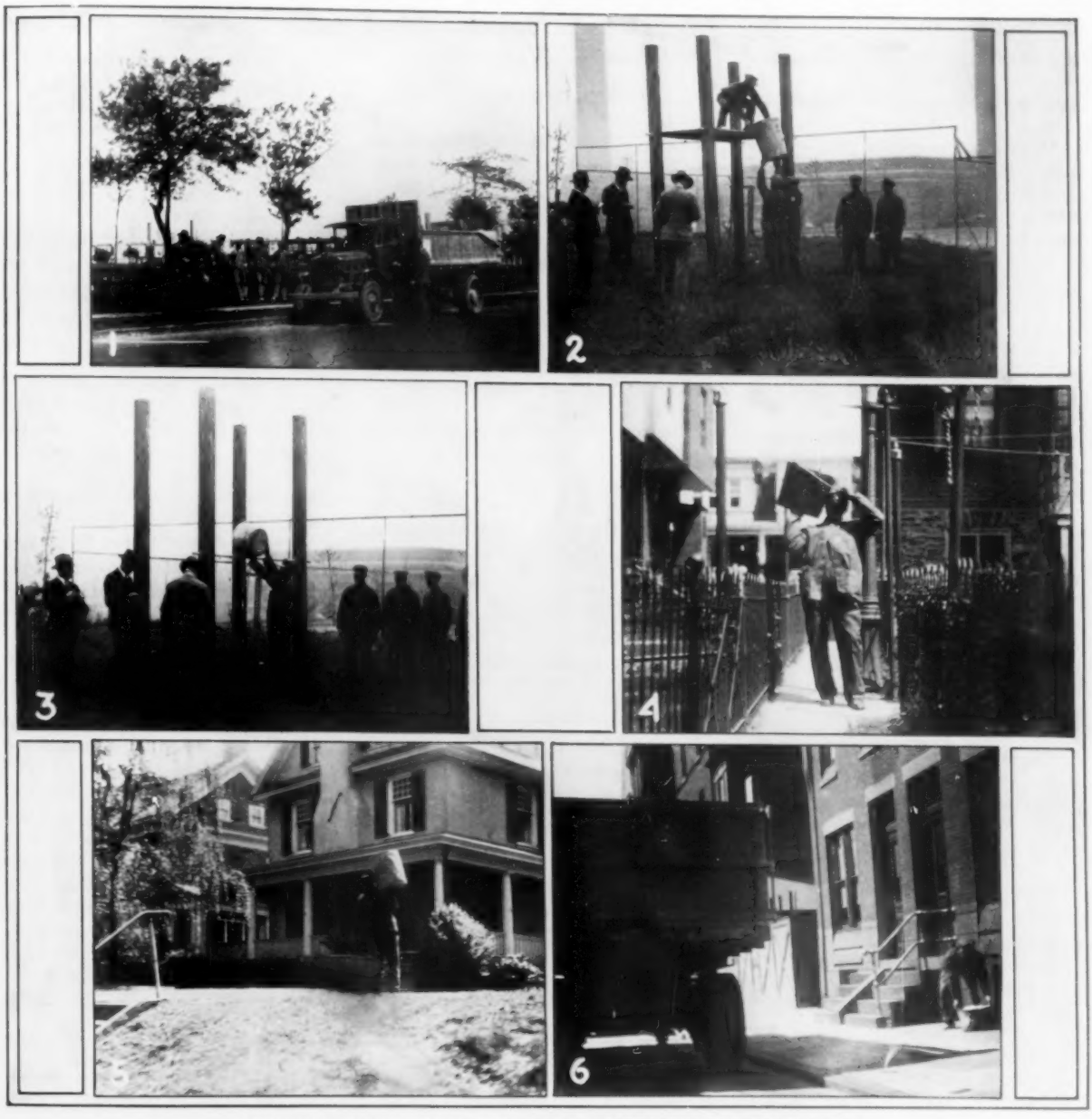
4. Time in seconds required for average man to walk down various heights of steps carrying various loads.

5. Time in minutes required for average vehicles of various types to travel 1,000 feet stopping at various regular intervals.

This basic information can be used as data for the solution of practically every problem arising in refuse collection, with a fair degree of accuracy.

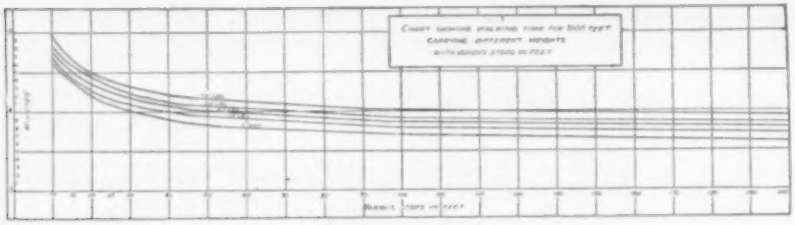
Table 1 shows the time required to lift and empty receptacles of various weights at various heights. The time includes placing the emptied receptacles upon the ground. It shows that two men on the ground are necessary to handle weights of 100 pounds and over, and that at least one man on the vehicle is necessary where the height is 8 feet or over. The time required to lift various weights to the shoulder for carrying is practically that required to lift and empty at the 4-foot heights. The greater height should be used where receptacles are lifted to the shoulder and carried to the vehicle, where the vehicle is higher than the shoulder.

The tests were made with five men in order to average physical differences, and the receptacles were lifted from the ground and emptied over a bar placed at the various heights upon two standards. A platform at various heights was used where men would have been necessary upon the vehicle to receive and empty the receptacles. All time was taken cumulatively with a stop watch. No graph was made for this table, because of the complications required by the varying number of men necessary to



MAKING THE TIME STUDIES OF REFUSE COLLECTION IN PHILADELPHIA

1. Timing a truck starting and stopping at 20-foot intervals on a level asphalt street. 2. Timing the lifting and emptying of a 75-pound weight of refuse to a height of 8 feet. The platform shown was removed durin g the test when experiments were made with smaller weights and at lower heights. 3. Lifting and emptying 25 pounds of refuse at a height of 6 feet. The platform shown in the second illustration has been removed. 4. Collector carrying a load of garbage through a narrow alley. Private receptacles are emptied into this container. 5. Mixed ashes and rubbish being carried from a typical suburban dwelling. 6. Ashes being remove d from a cellar window in a typical home in the center of the city



handle the refuse under different conditions.

Many conclusions may be drawn from the table, particularly the fact that difference in loading heights below 6 feet where the weights are small is of less importance than ordinarily supposed.

Table 2 gives the time in minutes required for the average man to walk 1,000 feet carrying various loads and stopping at regular intervals. The load was carried on the shoulder in all cases, and it was found that 75 pounds was the heaviest load a man could carry consistently throughout the test period. The test is given for 1,000 feet in order to eliminate the error that would arise from incomplete decimals for smaller distances.

Table 3 furnishes the time in seconds required for the average collector to walk up various heights of average steps carrying various loads, and Table 4 furnishes the time required for the collector to walk down similar steps. It will be noted that the time required to walk down with the greatest weights is larger than when walking up, because of the fear of falling in the former case. The unit time per foot decreases to approximately 6 feet, increases uniformly to approximately 10 feet, and then increases rapidly over 10 feet, as is plainly shown on the corresponding graph.

A Problem Set Up

The use of these tables may be illustrated by the solution of the following problem. "Each house in a row of 20 houses is 20 feet wide. Refuse receptacles weighing 50 pounds, including the contents, are placed 71 feet back from the curb line. The footway is 15 feet wide, next is a flight of steps 6 feet high, and the refuse is 50 feet back of the top step. How much time is required for one man to load the refuse into a wagon 6 feet high and replace the receptacle?"

The Solution

Starting at the first house, the collector walks 15 feet from the curb to the steps without load. This is done at each house, so that a total distance of 20 x 15 feet is traveled at the 15-foot stop rate, or $\frac{300}{1{,}000}$ x 4.39 minutes (from Table 2), equaling 1.32 minutes.

The collector next walks up the 6-foot-high steps, carrying no load, at each of the 20 houses. The time required to walk up the steps is 4.20 seconds (from Table 3) for each house, and this equals 20 x 4.20 seconds, or 1.40 minutes for the entire row.

From the top of the steps to the receptacle is 50 feet for each house, or 1,000 feet for the entire row, and the time required is 3.82 minutes (from Table 2).

From Table 1 is found the time of 5.36 seconds required to lift and empty a 50-pound receptacle at a height of 6 feet, which multiplied by 20 is 107.20 seconds, or 1.78 minutes.

The entire cycle for each house is as follows and may be obtained as illustrated previously:

Each House	Time in Minutes 20 Houses	Table
Walk to Obtain Receptacle		
* 1. Walk with no weight 15 feet..	1.32	2
2. With no weight up 6-foot steps	1.40	3
3. Walk with no weight up 50 feet	3.82	2
Carry Receptacle to Vehicle		
4. Lift and empty 50-pound receptacle at 6-foot height....	1.78	1
5. Walk 50 feet with 50-pound weight.....	4.05	2
6. Walk down 6-foot steps with 50-pound weight.....	1.70	4
7. Walk 15 feet with 50-pound weight.....	1.38	2
Return 12-Pound Empty Receptacle		
8. Walk 15 feet with 12-pound weight.....	1.34	2
9. Walk up 6-foot steps with 12-pound weight (interpolated) .	1.48	3
10. Walk 50 feet with 12-pound weight.....	3.92	2
Return to Curb		
11. Walk 50 feet with no weight..	3.82	2
12. Walk down 6 feet with no weight.....	1.33	4
*13. Walk 15 feet with no weight..	1.32	2
Proceed to Next House		
14. Walk 20 feet with no weight..	1.68	2
Total time (minutes).....	30.34	

* Collector will walk to curb if he is also driver of vehicle, but only to building line if vehicle is driven by another man.

Item 14 should not be included if it is less than the time required for the vehicle to travel a corresponding distance, in which case the travel time of the vehicle should be used.

It is necessary to estimate from experience the additional time required because of snow, ice, rain or hot weather. The estimates made under this system have been checked repeatedly with actual performances and are remarkably accurate.

Time Studies of Vehicles

The theoretical speed of a vehicle in continuous motion is dependent principally upon the power, the load, the road surface, the grade and wind resistance.

The actual time required for a vehicle to travel from place to place within a city is really dependent upon traffic conditions and traffic signals.

Additional factors enter into the time required for a vehicle to travel a given distance when the motion is interrupted by stops. These factors are the pick-up of the vehicle and the efficiency of the driver. For our purposes it was decided to obtain the time in minutes for the average collection vehicle of various types to travel a distance of 1,000 feet in minutes stopping at various regular intervals.

The length of time elapsing between the cessation and resumption of motion is thus eliminated as a factor. All trials were on asphalt pavement on the level with the vehicles loaded to one-half total capacity. Each test for a vehicle

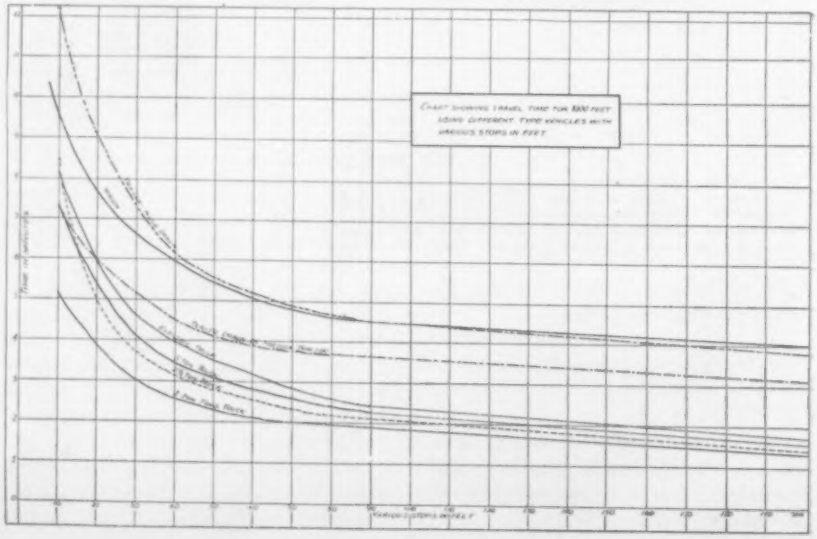


TABLE 1
UNIT TIME IN SECONDS REQUIRED TO LIFT AND EMPTY REFUSE RECEPTACLES OF VARIOUS WEIGHTS DURING PERIOD OF NINE HOURS

	Smooth Cylindrical Metal Receptacles with Batter—Clean Ashes Used					
Height (ft.)	12 Lbs.	25 Lbs.	50 Lbs.	75 Lbs.	100 Lbs.	150 Lbs.
2.....	3.81	3.90	4.54	4.88	2 men on ground 4.92	2 men on ground 6.05
4.....	4.28	4.51	4.63	5.02	2 men on ground 6.48	2 men on ground 7.36
6.....	4.30	4.94	5.36	5.76	2 men on ground 9.10	2 men on ground 10.20
8.....	1 man on vehicle 8.16	1 man on vehicle 9.17	1 man on vehicle 9.33	1 man on vehicle 11.76	2 men on ground 12.40	2 men on ground 14.60
10.....	1 man on vehicle 8.75	1 man on vehicle 9.35				
12.....	1 man on vehicle 9.00					

It requires 2 men on ground to handle 100-pound and 150-pound receptacles at all heights.
Use 4 feet height for weight carried on shoulder, but use greater height where lifting and emptying are different heights.

was conducted with five vehicles, each with a different driver, in order to secure an average result. The results were tabulated, but are best shown in the accompanying graph.

Practical experience must be used to correct the results obtained from the use of the tabulated data for traffic, grade, snow, ice, and poor pavements.

Many problems may be solved by the use of these data in combination with the loading information, such as the most efficient number of loaders, and collection from the middle or each side of a street under various conditions. The table is self-explanatory, so that no typical solution is necessary. The time required to make turns may be estimated as the time required for the tangent of the curbs.

Use in Preparing Estimate of Cost for Change of Refuse-Collection Methods

This system was first used on a large scale in preparing an estimate of the cost of collecting refuse from within property lines instead of from the footway at the curb. The estimate was prepared in compliance with the instructions of the City Council, as that body believed that much litter on the streets would be eliminated by collection from within property lines.

TABLE 3
TIME IN SECONDS REQUIRED FOR AVERAGE MAN TO WALK UP VARIOUS HEIGHTS OF STEPS CARRYING VARIOUS LOADS ON SHOULDER DURING PERIOD OF NINE HOURS

Weight Carried	Height of Steps 4 Ft.	6 Ft.	8 Ft.	10 Ft.	12 Ft.
None.....	3.00	4.20	5.60	7.15	9.20
25 pounds....	3.35	4.68	6.25	7.82	9.90
50 pounds....	3.82	5.30	6.93	8.70	10.80
75 pounds....	4.20	6.07	7.89	9.70	12.00

TABLE 4
TIME IN SECONDS REQUIRED FOR AVERAGE MAN TO WALK DOWN VARIOUS HEIGHTS OF STEPS CARRYING VARIOUS LOADS ON SHOULDER DURING PERIOD OF NINE HOURS

Weight Carried	Height of Steps 4 Ft.	6 Ft.	8 Ft.	10 Ft.	12 Ft.
None.....	3.00	4.00	4.95	5.90	7.40
25 pounds....	3.40	4.49	5.55	6.70	8.40
50 pounds....	3.85	5.12	6.57	8.00	9.95
75 pounds....	4.92	6.42	8.20	10.00	12.25

Separate estimates were made for the collection of ashes and rubbish combined, and garbage. The work necessitated the consideration of the removal of wastes from within cellars through cellar windows, areaways and houses, and the carrying of loaded and the return of empty receptacles through narrow alleys.

The work was simpler where the refuse was to be removed from yards outside the houses, although steps, narrow alleys and various obstructions were necessarily considered in this case.

There were 437,000 single-family dwellings and apartment houses in the city at the time the estimate was prepared, and it was manifestly impossible to consider each house separately. A survey of the city was accordingly made, and it was found possible to group with fair accuracy the houses in which conditions were practically similar. This information was placed upon four plans and used as data for the compilation of the estimate.

Combined Collection of Ashes and Rubbish

The first graphic plan drawn up in color showed the number of houses from which refuse must be removed through cellar windows and carried to the curb for disposal in vehicles. Blocks were shown in which the average distance of all houses from the curb was the same, and the number of houses within the block was indicated.

Blocks in which the cellar windows are 10 feet from the curb line were indicated by maroon; those in which the distance is 20 feet, in blue; those in which the distance is 30 feet, in green; those in which the distance is 50 feet, in yellow; and those over 100 feet, in neutral tint. There were 272,188 houses in the 10-foot blocks; 121,446 in the 20-foot blocks; 33,916 in the 30-foot blocks; 8,650 in the 50-foot blocks; and 800 in those where the distance was over 100 feet. Thirty feet was assumed as the average distance which refuse must be carried within every house of this type in the city.

The second plan showed blocks in which the mixed refuse may be removed from the yards either directly to the front street or through back yards and alleys. The distances that refuse must be carried were indicated on the map by colors. Red was used for 60 feet; blue for 70 feet; green for 80 feet; yellow for 90 feet; brown for 100 feet; and neutral tint for over 100 feet.

Blocks in which the houses are of such character that the refuse may be carried to the street through a side yard were indicated by cross-hatching, while those in which the refuse must be carried through back yards and alleys were in plain color.

Refuse could be carried to the front street through side yards a distance of 60 feet from 35,997 houses; 70 feet from 25,547 houses; 80 feet from 31,560 houses; 90 feet from 21,450 houses; 100 feet from 29,413 houses; and over 100 feet from 5,246 houses.

It would be necessary to carry refuse through back yards and alleys a distance of 80 feet from 5,315 houses; 100 feet from 58,088 houses; 130 feet from 104,701 houses; 155 feet from 97,429 houses; and 180 feet from 22,254 houses.

TABLE 2
TIME IN MINUTES REQUIRED FOR AVERAGE MAN TO WALK 1,000 FEET CARRYING VARIOUS LOADS AND STOPPING AT VARIOUS REGULAR INTERVALS DURING PERIOD OF NINE HOURS

Weight Carried	Stops at Intervals of 10 Ft.	15 Ft.	20 Ft.	25 Ft.	30 Ft.	40 Ft.	50 Ft.	100 Ft.	150 Ft.	200 Ft.
None.....	4.71	4.39	4.21	4.08	4.00	3.89	3.82	3.70	3.65	3.61
12 pounds.....	4.79	4.45	4.26	4.15	4.07	3.98	3.92	3.78	3.75	3.72
25 pounds.....	4.86	4.53	4.35	4.24	4.15	4.05	4.00	3.85	3.82	3.79
50 pounds.....	4.92	4.60	4.43	4.30	4.23	4.12	4.05	3.92	3.88	3.85
75 pounds.....	5.02	4.68	4.50	4.39	4.31	4.21	4.15	4.00	3.97	3.92

NOTE: 75 pounds was the maximum weight that a man could carry consistently during 9 hours.

Garbage Handling Presented Graphically

The third plan showed conditions existing in the collection of garbage at the time the estimate was prepared. Garbage was collected from the curb and also from within properties, and the map shows the sections in which the different methods were in vogue, together with the number of houses in each section.

The sections in which the garbage was set out at the curb were colored red and contain 182,198 houses; those in which the garbage is collected from a common rear alley were colored green and contain 155,139 houses; those in which the

garbage is collected from the yard and carried to the front were colored yellow and contain 99,663 houses.

A plan of this character was not necessary in the case of mixed refuse, as collection in that case is always made from the footway at the curb.

The fourth plan showed the number of houses from which garbage could be collected through side yards and carried to the front street, and those in which the garbage must be carried through back yards and alleys to the collection vehicle. The number of houses and the distance to the collection vehicle were indicated in colors, according to the distance the garbage must be carried, and the sections in which the garbage may be carried through side yards are cross-hatched over the proper colors.

Garbage could be collected through side yards and carried a distance of 60 feet from 29,402 houses; 70 feet from 20,980 houses; 80 feet from 15,226 houses; 100 feet from 19,014 houses; and no additional distance from 99,663 houses.

Garbage must be carried through back yards and alleys a distance of 20 feet from 156,198 houses; 80 feet from 4,866 houses; 100 feet from 44,232 houses; 130 feet from 38,120 houses; 155 feet from 2,000 houses; and 180 feet from 7,299 houses.

The information on these maps and that in the previous tables was used as data for the estimates.

Preparation of Estimates

Preparation of the estimate for the increased cost of collecting mixed ashes and rubbish from within properties was comparatively simple, although it involved a considerable amount of detail, as it was only necessary to compute the additional distances the refuse must be carried to the vehicles at the curb.

The average production of refuse was known from accummulated data, and the size of the receptacle is limited by the size of the cellar windows and the strength of the residents. The average weight of receptacle and refuse was found to be 41 pounds, and three receptacles were placed from the average house. This information was necessary, as each receptacle must be carried separately to the curb.

The same data were used for houses where it was necessary to carry refuse through side yards and rear alleys, but other considerations arose in the latter case. It is not practical to remove private receptacles through long alleys with many gates, because of the difficulty in replacing the proper receptacle and because variation in the size of private receptacles renders some too large and others too small for an economical load.

A receptacle weighing 10 pounds and holding 66 pounds was therefore used for receiving the contents of private receptacles and carried through the alleys.

The computations for the additional cost of garbage collection were as intricate as those for mixed refuse because there was no one method in use throughout the city as in the case of mixed refuse. The garbage was assumed to weigh 7 pounds from each house on each of three collection days and to be placed in a receptacle weighing 10 pounds. It was determined that it could best be removed through long rear alleys in a wooden carrier receptacle weighing 18 pounds and holding 42 pounds of garbage.

TABLE 5

TIME IN MINUTES REQUIRED FOR AVERAGE VEHICLE TO TRAVEL 1,000 FEET STOPPING AT VARIOUS REGULAR INTERVALS

WEIGHT OF VEHICLES IN TESTS

(Load is one-half of total capacity)

Vehicle	Weight of Vehicles (Lbs.)	Weight of Load (Lbs.)	Total Weight (Lbs.)	Tons
Ash wagon	3,400	2,000	5,400	2.7
5-ton truck	14,000	4,000	18,000	9.0
2½-ton truck	9,300	3,000	12,300	6.15
Ford truck	3,500	1,000	4,500	2.25
Autocar (electric)	12,850	7,000	19,880	9.94
Trailer (highway)	6,500	3,000	9,500	4.75

	Stops at Intervals of									
Vehicle	10 Ft.	15 Ft.	20 Ft.	25 Ft.	30 Ft.	40 Ft.	50 Ft.	100 Ft.	150 Ft.	200 Ft.
Wagon	10.50	8.95	7.95	7.10	6.65	6.00	5.45	4.41	4.20	4.00
Trailer, horse-drawn	12.20	10.30	9.03	8.10	7.30	6.12	5.58	4.41	4.10	3.81
Trailer, drawn by Fordson tractor	7.45	6.50	6.00	5.52	5.15	4.50	4.10	3.60	3.35	3.12
Electric truck	8.20	7.00	6.00	5.20	4.61	4.00	3.50	2.40	2.08	1.75
5-ton truck	7.45	6.30	5.40	4.70	4.10	3.47	3.10	2.20	1.90	1.60
2½-ton truck	8.45	6.20	5.00	4.20	3.70	3.17	2.80	2.05	1.75	1.40
1-ton Ford truck	5.20	4.45	3.97	3.40	3.00	2.60	2.30	1.85	1.60	1.21

The number of vehicles required remained constant in both cases, but a much larger force of loaders was required in order to dispatch the vehicles upon the same schedules as under the former method.

The increased cost of the new method was computed from the previous data and the tables and an additional sum added to allow for weather conditions, removal of snow from alleys, cleaning yards, difficulty in carrying refuse through narrow alleys, and delays caused by locked gates and absent householders, upon information obtained in a survey to determine these factors. A survey was also made as to the attitude of the residents toward the change in collection methods, and it found that a surprisingly small number was in favor of any change, principally because of their disinclination to have collectors enter their properties and for fear the refuse would not be collected during their absence.

The estimate was forwarded to Councils through the Director of Public Works in the form of a report of thirty-five pages giving detail data of the methods used and the results of the survey. The report included a discussion of the advantages of the change and showed the increased cost. The legislative body decided that the latter was not justified by the advantages to be obtained.

When Mayors Go Wrong

ALTHOUGH it is not a customary practice for American cities to remove their mayors except at election time, it has been deemed a necessary safeguard to make some provision for the removal at any time of mayors and other elective officials for inefficiency, misconduct or neglect of duty. In New York State there is a general law providing for the removal of public officials by the governor upon presentation of charges and after an opportunity to be heard. In addition to this general law, 26 cities have provided in their charters for the removal of the mayor, according to the New York State Bureau of Municipal Information. In all but three of these cities the mayor is removable by the governor upon the presentation of charges against him for disability, for serious neglect or dereliction of official duties, or for some delinquency materially affecting his fitness for office. In all cases an opportunity is given the defendant to be heard.

In Albany the mayor may be impeached by a two-thirds vote of the common council and his trial shall be held before the circuit court having jurisdiction thereover.

In Jamestown the mayor may be removed by a three-fourths vote of the common council after a 48-hour written notice of the charges against him and after a hearing on these charges.

In Oneonta, the Mayor may be removed upon petition of not less than 25 per cent of the electors after trial before the supreme court or any justice thereof in the district of Oneonta, for dishonesty, incapacity, neglect of duty or other irregularity. Such petition and notice of the time it will be heard shall be duly served upon the officer sought to be removed, not less than ten days prior to such hearing. Before the service of such notice the petitioners shall deposit with the city chamberlain the sum of $300, which in case of the denial of said petition shall be forfeited and paid to the officer sought to be removed, in lieu of costs. The entry of the order of removal or a certified copy thereof in the office of the clerk of the city of Oneonta shall constitute a vacancy in the office in question.

E. D. GREENMAN.

PUPPET REHEARSAL AT THE WOODLAND PLAYGROUND IN HOUSTON, TEXAS
Producers and cast are ready for the show, "How the Elephant Got His Trunk"

Playground Puppetry

How Houston Pioneered in Its Introduction and How It Has Spread Over the Country

IT was while attempting to compromise with one of its conspicuous shortcomings that the Recreation Department of Houston, Texas, arrived at the novel idea of playground puppetry. The pygmy drama, representing the creative genius and the enthusiasm of its young *entrepreneurs*, has not only proved a vast and inexhaustible source of delight to the whole playground population of that city, but has spread from there to every part of the country.

Miss Frances Fox, who came to the Department as full-time dramatic director while the city was still without indoor facilities for dramatic productions, was responsible for the innovation. Equipped with a set of marionettes, she appeared unannounced at one of the neighborhood play centers one afternoon, and gave a dramatic presentation in miniature of the much-loved nursery tale, "The Little Red Hen." After telling the story, already so familiar to the children, the director allowed them to manipulate the marionettes upon the miniature stage, shifting the cast again and again until every child had had opportunity to take part.

The puppet show so delighted the children that they formed themselves into a "stock company" and became regular "producers." They chose their favorite nursery stories for dramatization, and, in some instances, created original dramas which they presented. To quote Miss Corinne Fondé, Superintendent of the Houston Department of Recreation:

"The first set of puppets made the rounds of more than 20 playgrounds and furnished entertainment and experience in acting to thousands of children.

"The old idea of using toys for characters was discarded and the children were taught to make figures for the casts, as well as furniture, scenery, costumes, and lighting effects. They arranged their own dramatizations for stage production and chose their own casts, trying out each child carefully to find the best talent. Each playground selected its own story for production, with the director giving final sanction in order that no duplication might arise.

"Tournaments were instituted in which each playground selected its best troupe to represent it in a district meet. Winners in the district test were entered in a city-wide tournament given in some centrally located place and attended by children and grown-ups from all parts of the country.

"Judges were chosen from the city's teachers and dramatic critics, and awards were made on expression; skill in manipulating the puppets; appropriateness of figures, costumes, proportion; artistry and stringing; scenery and properties; and smoothness of performance."

Miss Fondé declares that more amazing to the director and the playground leaders than even the talent shown by the children in stage setting and puppet making was the interesting way in which they dramatized their own stories, adding that children who had perhaps never seen a play showed remarkable appreciation for dramatization and execution.

A Clearing-House for Information Established

"Winning troupes," she says, "journeyed to neighboring cities and towns with their puppets, and so the movement spread, and news of it spread, resulting in numerous calls from other cities for information and instruction. To meet this demand, a service bureau was established as an adjunct to the Drama Division, and sets were loaned to inquiring cities over the country, to be used either in puppet shows or as models for construction.

"Five sets of puppets made by children on the playgrounds under Miss Fox's supervision were sent to a national Recreational Congress in Atlantic City, and others were sent to Memphis, Asheville, and Baltimore. It has been six years since the project was first launched, and since that time the old order of grown-up stage puppet shows for children has given way in the play centers of the country to puppetry by children, for children.

"Following the remarkable success of playground puppetry in Houston, a

"OLD KING COLE," PUPPET PRODUCTION BY HOUSTON PLAYGROUND CHILDREN
The duties of the children in connection with this play included making the puppets and arranging the stage setting

request came from the Museum of Fine Arts for a class in the art of puppet-making. The museum course, as directed by Miss Fox, emphasizes the art side of puppetry, and includes instruction in clay modeling and sculpture, costuming, scenic design, stage lighting, and the construction of stage and properties."

Miss Fondé believes that it is impossible to say too much in praise of the training given by this kind of dramatic work, for puppetry as practiced on the Houston playgrounds requires technical skill, presence of mind, taste, artistic talent, and dramatic skill.

Spokane Plays Puppets

"We became interested in some writings on puppetry, and decided to go into the game ourselves," reports Benjamin J. Clark, Playground Supervisor, of Spokane, Wash. Each playground made a small puppet theater, and began giving shows. Theaters, scenery, puppets, costumes, controls—everything was made by the children with the help of the play directors and the handcraft instructor. The latter, who has had dramatic instruction and experience, divides his time equally among the eight playgrounds.

"Each playground at first chose one play (and a few chose two) working upon this program exclusively. We found the summer season all too short in most cases to create an entire puppet outfit and work up more than one play. It takes an immense amount of time to make and learn to control marionettes. In 1927 they were all carved out of wood with a jackknife. (Just try, sometimes, to carve a convincing head and face for some conventional storybook character with only a jackknife!) But we learned by experience, and in 1928 we used plastic wood and molded the heads and faces, with a great saving of time.

"On our 1927 annual Play Day, a puppet contest was featured. Each of the eight playgrounds brought its own puppet outfit and set it up in a grove at Manito Park where there was sufficient space for all of the eight shows to run at the same time without interfering with each other. Each show was repeated until we felt that all who wished had seen them all. It was a most entertaining spectacle to stand at a distance and see the whole eight going, each with its crowd of 200 or 250 spectators. This was repeated again last year, and will be this year.

More than 200 shows were given each year on the playgrounds, in addition to the Play Day shows. These occurred not only once, but several times daily, and in addition to regular plays the boys and girls would give special numbers by individual puppets and groups of puppets, making up these little "vaudeville stunts," acting, speaking, or singing, as they gave them. Even the animals were made to dance and sing. Adults and children alike seemed never to tire of the antics of the little creatures. One of the playgrounds had a circus with all the animals. The elephant was made of old volley-ball and soccer-ball bladders skilfully cemented so as to hold air when it was blown up. This inflated elephant's dance was one of the topline attractions of its playground's show.

Puppet shows were given at luncheon meetings and at teachers' conferences; and the puppet group from one playground would frequently "go on circuit," putting on a show at each of the eight centers. Such plays as "Little Red Riding Hood," "Snow White," "Goldilocks," "Jack and the Bean Stalk," and "Ichabod Crane" are a familiar part of the puppet repertory. Two little plays, "The Judge's Dream," and "The Hunted Chest," have been written for the playground puppets by a former Spokane playground boy. Many new plays are being added this year, and more time is being devoted to presenting plays than to perfecting equipment, since each playground has an entirely rebuilt outfit this season.

Each theater now has a front of beaver board, 8 feet high and 6 feet wide, with a stage opening about 3 feet from the ground, about 2 feet wide, and 18 inches high. A stage floor fits up to this opening, carrying scenery, properties, etc. The front is in three sections that hinge and fold, and the folding stage floor hinges on. A canvas-covered frame encloses the whole. Four or five of the theaters can be loaded onto a motor truck at once, and, arriving at their destination, can be set up and in operation within ten minutes.

More Landing-Room Needed for Planes in the United States

A NATION-WIDE system of airports at intervals of not more than 10 miles in each direction should be seriously considered to assure the growth and safety of aviation in the United States, in the opinion of Harry F. Guggenheim, President of the Guggenheim Fund for the Promotion of Aeronautics.

Mr. Guggenheim believes that flyers have been asked to do the unreasonable when expected to pilot their planes over many miles of territory where they could not land with ease and safety if required to by bad weather or other conditions.

"If airports were located throughout this country at intervals of 10 miles in each direction, an airplane would normally never be more than a maximum of five miles from a landing field, or, in other words, would rarely be out of gliding distance if flying at an altitude of four or five thousand feet," Mr. Guggenheim says in a recent statement. The amount of land which this would require is insignificant in comparison with the area devoted to the railroads or roads of the country. It is roughly but conservatively estimated that the total land occupied by the railway right-of-way in use, and by station property, is 21,550 square miles. The total occupied by the nation's roads and highways, according to the latest mileage, and allowing a conservative width of 50 feet, is 28,500 square miles.

"As against this area represented by roads and railways, amounting to a total of 50,050 square miles, landing fields of normal intermediate size—1,200-foot runways—as used by the air mail, placed 10 miles apart all over the country, would require only 1,544 square miles, or about three per cent of the other figure."

County Roads You Can Ride on Every Day in the Year

By J. R. WENDT

Parish Highway Engineer, Benton, La.

A FEW years ago lack of local roads made Bossier Parish a cluster of isolated communities. Its citizens were dependent upon narrow, boggy roads, if any, and upon old wooden trestles that made no pretense of being qualified to carry vehicles at modern speeds.

This region produces timber, oil, gas, cotton and other necessities that the nation is willing to pay for. The population of 22,000 is progressive, and in 1925, when the good roads enthusiasm began in Bossier Parish, an initial bond issue of $1,630,000 was voted, with the avowed purpose to put every town and community of any importance on a road over which a motor truck and the family car and old Dobbin alike could move regardless of the weather. The bonds were authorized first to retire an old issue of $240,000, then to finance a definite road program, according to a budget of expenditures which stipulated that the entire system must be completed before expenditures could be made on additional roads.

A GRAVELED SECTION OF THE COTTON-VALLEY-HUGHES SPUR HIGHWAY SURFACED WITH LOCAL IRON ORE

The Revised Road System

During the month of November, 1928, the people of the state of Louisiana voted an additional tax of 2 cents per gallon on gasoline, making a total of 4 cents per gallon. This constitutional amendment authorizing the increase in gas tax stipulated that all state highways shall be constructed and maintained wholly by the state, thereby relieving the parishes of the state from contributing one-half the cost of construction of state roads as in the past.

This gave Bossier Parish additional funds with which to construct more farmers' roads to the main-line highways, hence it was necessary to revise and enlarge the parish system of highways.

In addition to constructing roads free of cost to parishes, the state will maintain free all roads constructed by the parishes, where such roads are in the state system and are up to state standards.

Bossier Parish was fortunate to have some 60 miles of roads recently constructed by the parish placed in the state system. The revised road system consists of three arterial highways, part of the state system, one north and south, U. S. 71, two east and west (one U. S. 80), three secondary highways, in the state system, one north and south and two east and west, and parish laterals connecting the main-line roads at various points.

When completed, the system will embrace 80 miles of pavement in the state system, and 175 miles of state and parish graveled highways.

AN OLD AND A NEW BRIDGE ACROSS CYPRESS BAYOU ON THE BENTON-HAUGHTON HIGHWAY, LOUISIANA

The new bridge is 380 feet in length with a clear span of 17 feet

Roadway Standards

State highway pavements are of the Bates-Illinois type, 18 or 20 feet wide, with a shoulder-to-shoulder width of 30 feet. State standard gravel roads are surfaced 18 feet wide, with two 6-foot shoulders. Parish lateral roads are graded 24 feet wide and surfaced to a width of only 12 or 14 feet. Much thought has been given to the design of this type of road, for upon the ability to keep its cost down has hinged success in providing for the large mileage needed. As finally built, the surfacing has consisted of a 6-inch layer of either local iron ore or pit-run gravel of about 50 per cent ore content, with a 2-inch application of washed gravel on top of this where traffic or foundation conditions required. The side slopes are made 2½ to 1, the ditches are flat-bottomed, and the back slopes 1½ to 1.

Extensive embankment work has been necessary to raise the grade or fill in old trestles across bottom areas. Of course,

ONE OF THE MAINTENANCE CREWS OF THE BOSSIER PARISH HIGHWAY DEPARTMENT AT WORK ON THE HAUGHTON-ELM GROVE HIGHWAY

little longitudinal haul was required, for such material as is needed in ballasting cuts and fills in rolling country is frequently taken from wide borrow-pits extending well beyond the usual right-of-way.

The Use of Iron Ore

Iron ore is abundant in the northern part of the parish and has been used with excellent results as a road material. Where projects are near by, it is hauled direct from the pit. Farther south a considerable amount of pit-run ore-bearing gravel is shipped in from a neighboring parish. The mileage built of the two materials is about equal. The availability of these materials has been an important factor in speeding the completion of good roads.

Maintenance

The new highway system would soon fail without adequate maintenance funds. Fortunately, the maintenance needs were foreseen by a wise local government. The parish laterals, corresponding in a sense to the township roads in other states, are financed by a tax of from 2½ to 5 mills, voted every five years. Each ward or township which is represented by a police juror or county commissioner pays for the upkeep of its own roads. About $55,000 is thus raised annually. Modern power equipment is used, and the horse-drawn equipment has been entirely supplanted. The equipment used by Bossier Parish for maintenance and construction consists of one Caterpillar Sixty tractor, one Caterpillar 5-ton tractor, eight 15-30 McCormick-Deering tractors, one No. 12 road grader, eight No. 7 Adams graders, two No. 6 Russell graders, one 2-ton International truck, one 3-ton White truck, one 1½-ton Ford truck, two 1-ton Chevrolet trucks, five 1-ton Ford trucks, and one Ford automobile.

The state roads within the parish are maintained under the supervision of the State Highway Department, the state paying the entire cost.

Bridges

The swampy localities have required many bridges, including thirteen of considerable size on parish projects. Although many single-span bridges are built of concrete, the prevailing type of construction is the timber trestle, as timber is plentiful. The standard deck has a clear width of 17 feet and is supported on 4-pile bents with a standard span of 19 feet. The decking is heart white oak; the rest of the timber and the piling is creosoted, using a 12-pound treatment. These modern sturdy-appearing structures are in marked contrast with their abandoned predecessors, whose flimsy bents, built when traffic was light and funds almost non-existent, are frequently to be seen along the new road.

Costs

The state has completed 25 miles of concrete and is grading five miles for paving. The average cost, including grading, drainage and bridges, is about $29,000 a mile. About 30 miles of state standard gravel has been laid to date at about $11,500 a mile.

The parish laterals have been pushed until today the program is practically completed with 76 miles of serviceable road, and, at an average cost, including much trestle work and heavy filling, of only about $7,000 a mile. The decision to spread available funds over 80 miles instead of one-half or even one-fourth that mileage, as might have been done, is perhaps the most important decision made in planning the Bossier Parish highway system.

It is by means of these roads which penetrate the districts back from the main roads that the region as a whole has come really to benefit by better transportation. Farmers, timber interests, the oil and gas industry, as well as people in towns and cities, are reflecting the change which these roads have brought about in their lives.

Photostat Recording Advocated for All Municipalities and Counties

THE photostat process for recording written documents is both cheaper and better than methods now in general use and should be thoroughly investigated by all city and county officials, in the opinion of George C. Havenner, an expert in government efficiency methods, who discusses that subject in a pamphlet published by the Municipal Administration Service, of New York.

Five distinct advantages are claimed:

"1. Photostat copies of any document can be made and are ready for use in a few minutes.

"2. Photostat recording is economical, costing less per folio than any other known process.

"3. Photostat prints are accurate, the print being a facsimile of the original document.

"4. Photostat prints are permanent; they will not fade and they will last as long as the paper base.

"5. Interlineations and deletions cannot be made in photostat prints without easily being detected."

Summing up these five reasons in even briefer form, Mr. Havenner terms them "speed, economy, accuracy, permanency, and fraud-proof."

"Many local governments throughout the country are adopting the photographic method of recording land instruments, wills and similar documents filed for permanent record in state, county and city offices," the writer declares. "Cook County, Ill., which adopted it in 1924, was the first county to install that system of recording deeds, mortgages, releases, and other instruments pertaining to real property rights. Some of the other counties which have adopted this method are:

"Adams County, Brighton, Colo.; Arapahoe County, Littleton, Colo.; City and County of Denver, Colo.; Las Animas County, Trinidad, Colo.; Duval County, Jacksonville, Fla.; Pinellas County, Clearwater, Fla.; Marion County, Indianapolis, Ind.; Genesee County, Flint, Mich.; Kent County, Grand Rapids, Mich.; Oakland County, Pontiac, Mich.; Wayne County, Detroit, Mich.; Ramsey County, St. Paul, Minn.; St. Louis County, St. Louis, Mo.; New York County, New York City (Probate Court); Suffolk County, Riverhead, Long Island, N. Y.; Craig County, Vinita, Okla.; Muskogee County, Muskogee, Okla.; Okmulgee County, Okmulgee, Okla.; Ottawa County, Miami, Okla.; Seminole County, Wewoka, Okla.; Sequoyah County, Sallisaw, Okla.; Tillman County, Frederick, Okla.; Kenosha County, Kenosha, Wis.; District of Columbia (Register of Wills).

Not all of the counties listed have installed photostat machines. A number of them where the volume of recording is not sufficient to justify purchasing their own equipment, contract for this work.

Massachusetts Takes Thought for Conserving and Increasing Her Recreational Areas and Open Spaces

"*As trustees of posterity we should plan for the future. It is our duty to make it possible for generations to come to enjoy outdoor recreation.* The use of motor vehicles and airplanes will increase as years go by, and large areas will be in reach of more and more people. If private property is not to be trespassed upon and abused, an alternative must be provided for those who cannot afford or do not wish to patronize holdings of hotels and amusement parks. The temporary spread of population of cities into the country along highways on all week-ends, holidays, and vacation periods will increase."

This significant quotation is from a report of the Committee on Needs and Uses of Open Spaces in Massachusetts recently made to the Governor and now published both as a separate pamphlet and as a part of the annual report of the Massachusetts Trustees of Public Reservations, accompanied by a large colored map. The report continues:

"More and more, privately owned areas are being closed to the public. City population is steadily growing. New transportation facilities are extending the area of the country within reach of the populous centers. There are increasing reasons for such publicly controlled areas as state and town forests and parks, motor camp places, scenic and historic sites, beaches, pond reservations, and wilderness areas for bird, mammal, and fish preserves—for wild life conservation, and outdoor recreation. *We must plan for this today.*"

The report constitutes a plan, tentative, but based on a state-wide study. This shows that, scattered throughout the state, there are 44 state forests, 11 state reservations, 26 semi-public areas owned by the Trustees of Public Reservations, and other bodies, and a number of sanctuaries established by the New England Federation of Bird Clubs. The Committee's proposals looking to an orderly expansion of all public playground facilities included the development of some open areas independent of present reservations and some in conjunction with state forests, parks and sanctuaries. In some instances it defines the limits of areas that in its opinion ought to be set aside. In other instances it indicates within what boundaries the state should acquire as much land as possible.

Recommendation is made for the creation of a division of parks under the Department of Conservation, and for recognition of the Trustees of Public Reservations as the permanent body to cooperate with the various state departments and voluntary agencies in the execution of future plans. Another recommendation—one which has already been embodied in a bill reported by the Committee on Harbors and Public Lands in connection with the taking of Salisbury Beach as a public reservation—provides that all reservations hereafter taken by the state shall be managed by the State Conservation Department. Another important feature of this bill is provision for the creation of a state reservation trust fund over which the State Treasurer shall have custody, and which will enable that officer to accept gifts and bequests of money and land to apply to the reservations of the Conservation Department. In recent years gifts for state forestry purposes have been equivalent to approximately 10,000 acres, and it is anticipated that, with this broadening of authority, public interest will be stimulated and that gifts for recreational and scenic areas will result.

One point, emphasized in the report,

MAP OF OPEN SPACES FOR MASSACHUSETTS

Key to open spaces as shown by letters:

A Tri-State Park
B Appalachian Trail
C October Mountain - Beartown Forest
D Mohawk Trail (upper part)
E Upper Deerfield Gorge
F Mohawk Trail — Savoy Forest
G Windsor Jambs
H Westfield River Gorge
I Jacob's Ladder
J Otis-Granville Forest
K Holyoke Range
L Warwick-Wendell Forest
M Doane's Falls, Royalston
N Mt. Watatic
O Wachusett-Watatic Trail
P Willard Brook, Ashby and Townsend
Q Lake Chaubunagungamaug, part
R Douglas Woods
S Salisbury Beach
T Plum Island, part
U Dogtown Common, Gloucester
V Boxford Reservation
W Fowl Meadows, Bedford and Concord
X Sudbury Meadows
Y Rocky Narrows, Charles R.
Z Upper Neponset Meadows and Purgatory Swamp
AA Moose Hill Region, Sharon
BB Raynham Great Cedar Swamp
CC Fall River, New Bedford and Taunton Forest
DD Westport Beach
EE Duxbury Beach
FF Myles Standish Forest extension
GG Barnstable Neck and Marshes and Shootfying Hill
HH Yarmouth Forest
II Pilgrim Lake, Truro
JJ Monomoy Island, part
KK Nantucket Moor

was reiterated and stressed at the Third Conference on Regional Planning for New England which met at the State House in Boston on May 29, shortly after the appearance in printed form of the report, and at which the work of the Committee on the Needs and Uses of Open Spaces was discussed and commended. This point was the inadequacy of one state to develop properly its outdoor public recreation facilities without the cooperation of the adjoining states. The seven coordinated major proposals embodied in the Regional Plan, which is to be published in 1931, include prominently provision for the conservation and enlargement of recreational facilities and for the control of the remaining open areas not only for Massachusetts but for the whole region, according to William Roger Greeley, Chairman of the Conference.

The Committee notes that Massachusetts, the nation's pioneer in the creation of public recreation areas, has slipped down to eighth place among the states in its provision of acreage per thousand inhabitants for play purposes. It further notes that acquisition delayed becomes increasingly more difficult—often becoming impossible. Governor Frank G. Allen, to whom the report was officially transmitted by Charles S. Bird, Jr., Chairman, echoes the importance of the program:

"We in Massachusetts have become a city and town people to a degree which we hardly realize. Ninety-four per cent of our population are urban dwellers. And 3,500,000 of 4,150,000 people of Massachusetts live within 40 miles of the Boston State House. So it is unnecessary to emphasize the importance of providing facilities for our citizens to win health and recreation for soul, mind, and body in the beautiful countryside which Nature has given Massachusetts. . . . Beauty is as important as bread if man is to develop his highest possibilities."

Area, Population and Street Accidents, New York and London

THE world's two largest urban communities are fruitful sources of comparisons, more or less significant; but even such relatively simple ones as those of area and population are subject to explanation, particularly because of the differences in governmental make-up. The City of New York, as a unified government, with certain powers and functions remaining with the five component boroughs, embraces an area of 309 square miles, with a population of 6,017,500, estimated as of July 1, 1928. The City of London, on the other hand, has an area of hardly more than one square mile, and a population (1928 estimate) of 13,110. The County of London, however, governed by the London County Council and by many local governments, is urban territory and is more nearly like the usual concept of a great city. Its area is 117 square miles, and its population (1928 estimate), 4,502,000.

Still larger than the county is the area known as "Greater London," consisting of the City of London and the Metropolitan Police District that surrounds it and extends beyond the county limits. Another area, constituting a portion of the county, is sometimes referred to as the "Central Area," consisting of the cities of London and Westminister, combined with eight entire boroughs and parts of two others. A recently published volume of "London Statistics" (Volume 32, 1926-27), issued by the London County Council, gives population figures from the official census of 1921, and estimates for 1925-1927 (and 1928 for the two instances given above, but not for Greater London) together with area statistics, for the various divisions. The following table, based upon these figures for London, and United States Census Bureau figures for New York (the 1920 census and 1927 estimates), presents some statistics of area, population, and population density, comparing in these respects the borough of Manhattan with the "Central Area of London;" the City of New York (all five boroughs) with the County of London; and the New York Metropolitan District, as used by the Bureau of the Census in the 1920 census, with Greater London. The new metropolitan district, recently decided upon, is much larger than the old, and less useful for this comparison.

New York	Area, acres	Population 1920	Population 1927	Population per acre 1927
Borough of Manhattan	14,209	2,284,103	1,814,600	127.7
City of New York	197,727	5,620,048	5,970,800	30.2
New York Metro. Dist. (old)	751,887	7,910,415	8,643,000*	11.5

London	Area, acres	Population 1921	Population 1927	Population per acre 1927
Central area	12,268	1,266,843	1,272,350†	103.7
County of London	74,850	4,484,523	4,550,000	60.8
Greater London	443,449	7,480,201	7,809,963	17.6

* Estimated taking Census Bureau's July 1, 1927, estimate for New York City and assuming an increase for the rest of the district at the same rate as from 1910 to 1920.

† Estimated by assuming for such parts of boroughs as enter into the area the same rate of increase, 1921 to 1927, as for the entire boroughs

Another subject for an interesting comparison is the mortality from street accidents in the two metropolises. The Annual Report of the London and Home Counties Traffic Advisory Committee (1927-28), recently published, gives this data for the City of London and the Metropolitan Police District (the combination of these constituting Greater London), for 1920 to 1927, inclusive, and the 1928 figure has been obtained from the British Library of Information, New York, where the report is obtainable (see page 177). These are shown in the following table with corresponding figures for New York, from the city health department, the rates per 100,000 population being shown also.

DEATHS FROM STREET ACCIDENTS, NEW YORK AND LONDON, 1923–1928

Year	City of New York No.	City of New York Rate per 100,000	Greater London No.	Greater London Rate per 100,000
1923	1,105	19	684	9
1924	1,103	19	866	11
1925	1,172	20	853	11
1926	1,222	21	1,020	13
1927	1,192	20	1,071	14
1928	1,153	19	1,252	16

In comparing these figures there should be borne in mind the relative densities of population—30.2 per acre for New York, and 17.6 for Greater London—and the relative automobile registration. In New York City the registration, not including motorcycles, on August 1, 1928, was 614,771, or one motor vehicle for every 10 persons. The registration for Greater London is not available, but that for the County of London, in the third quarter of 1928, excluding motorcycles, agricultural engines, tractors, and "miscellaneous" (chiefly tram-cars) was 149,712, or one motor vehicle for every 30 persons.

Loveliness and Liveableness Must Be By-Products

WE tend to throw the responsibility for all things that add light and loveliness, grace and distinction to American life into the hands of a small group of professional artists, architects, and uplifters. This is a dangerous business for the future of America, because a social-mindedness that is but the special function of a special group of socially-minded persons who are swimming against the general stream of a community's life, a community's industry, a community's business, cannot be real. It will remain but a tinsel decoration. The things that really add loveliness and liveableness to a community must come as by-products of the way men carry on the private activities out of which they make their bread and butter.

No small band of uplifters can permanently prevent slums, if the organization of machine industry is such that slums are created by it. Beauty cannot be injected into a community that organizes and administers its common affairs in a sordid and slovenly manner. We cannot bring the priceless boon of great and beautiful architecture to American cities if architects must serve a system of developmental schemes animated by no interest beyond the sale of properties.

—From an address by Glenn Frank, President, University of Wisconsin, before the National Association of Real Estate Boards.

Hollister, Mo.—A Town in the Ozarks Where Architectural Control Is Effective

By PAUL J. PIRMANN

THIS city's experiment in architectural control and in the establishment of English building design for its business and industrial centers has been so pleasing and satisfactory to Mayor R. F. Hulland that he has sponsored, and the city has this year adopted, the following ordinance:

"Be It Ordained:
"That in order to follow the city's plan of building an English city in the Ozarks, and knowing that to follow this plan is to make Hollister a city both unique and beautiful, we by ordinance do amend section three of ordinance 24, of November 17, 1913, and declare that all buildings in the future erected in the business section (as outlined by plat) follow our present plan of Old English type architecture, and that no other style of building be allowed."

Mayor Hulland declares that there is a thrill about having your trade marts akin to those of the old country of centuries ago, and has consistently used his influence for the development of the plan in the most ideal manner possible. The idea was conceived by the town's founder, W. H. Johnson, and developed by his son, W. W. Johnson, an architect of Springfield, Mo. The merchants have cooperated heartily, and the results today are unusual, astonishing, and altogether praiseworthy. Mayor Hulland is proud of the fact that there is not, in our knowledge, another city in the United States that has developed in a similar manner. The idea was entirely original here, and the great attractiveness of the town to tourists, and the favorable publicity that its distinction has won for it, led to the adoption of the recent ordinance looking to further and more complete control.

Hollister was platted in 1906 when Mr. Johnson first acquired a beautiful tract of land lying along the south bank of the White River, and, being an idealist, conceived the development as one that would enhance the natural setting and prove a model residence and resort town. There was no such development in the section, and the owner launched the project with enthusiasm. After the first plat was filed, and quite a few lots had been sold, he was informed by officials of the recently completed Missouri Pacific Railroad line through the section that because of the close proximity of Branson, a new and already flourishing town, trains would not stop at Hollister. That was the beginning of a long struggle for growth. The town's founder acquired more land, and gave desirable tracts to the Presbyterian Assembly of the Southwest and the Missouri Young Men's Christian Association on the assumption that these organization centers with the crowds they would draw would help matters with the railroad. It did. Hollister became a

BUSINESS SECTION OF HOLLISTER, MO., AS SEEN FROM HILLSIDE BACK OF MISSOURI PACIFIC STATION

The shrubbery and park-like arrangements around the station are clearly shown

TWO SCENES SHOWING THE HARMONIOUS ARCHITECTURE AT HOLLISTER

At the left, a view of Front Street, looking south. At the right, the cheese factory that was the first unit of the new style of Old English architecture in the town

VIEW OF FRONT STREET, HOLLISTER, MO., LOOKING NORTH

stop. Let Mr. Johnson relate characteristically the development thereafter:

"We had a box-car station for a period of two years and I was permitted to pay the salary of the station agent during 48 months because the receipts did not warrant that expenditure on the part of the railroad. Having traveled a great deal over the United States and always preferring to gaze at the countryside rather than keep my eyes on a magazine, I had been impressed with the universal habit of most communities of surrounding their depots with unsightly developments. In fact, most of the towns I had seen were poorly planned or built haphazard fashion. Having the future of Hollister in my own hands, I determined to capitalize her natural advantages and preserve her scenic values. It was not until the picturesque English architectural plan was well under way that we conceived the idea of making it compulsory and adopted the 1913 ordinance requiring all builders to present their plans to the Board of Trustees of the Village before they would be permitted to proceed.

"The town was originally platted to follow the curves and contours of the landscape, with creek and river banks and waste places reserved for parks. I had set aside a strip of ground 100 feet wide paralleling the railroad right of way, and included an allowance in ground space for a 'Y' which I believed the railroad eventually would need. When I was notified that we were to have a depot, I undertook to finance the landscaping of the grounds surrounding the building, to bring them into conformity with similar development in other parts of the city. I also immediately offered the railroad $500 to permit me to design the new station regardless of what the company was willing to spend for its construction. Working with the railroad's architect, Howard Longstaff, we designed the present depot, and its erection was turned into my hands. The result was so satisfactory to the company that my check for $500 was returned to me. For several years now, the company has accepted the responsibility of keeping the extensive planting around the station in condition at its own expense."

It was the possibility that some lot owner might spoil the whole present effect by inserting into the scheme a building entirely out of harmony with the Old English style that prompted Mayor Hulland to develop the above-quoted ordinance, Mr. Johnson continued. Touching upon the inevitable dissent which he has encountered in putting across his program, he said:

"Some of the citizens refuse to this day to be converted, but most of our folks agree, and the English style is freely adopted even outside the sections controlled under the old ordinance and provided for by the new one. Even the corner filling-station and the new milk-products plant completed during the past summer were designed to fit harmoniously into the general scheme. Even buildings in the industrial center will be constructed along Old English lines in future, though Hollister is not to be developed for industries. It will be kept, as in the past, more for resort and residential purposes. Should the proposed Table Rock dam, four miles west of here, bring industries, Hollister will not be the site of the factories. But it is anticipated that executives and the highest types of employees will find Hollister ideally adapted for their homes. Then Hollister will really come into its own as the most unique, the most distinctive, the most interesting and picturesque bit of Old English planning in America."

Zoning Appeals and Law Violation

PEOPLE do not appeal to the courts for permission to violate laws. They do appeal for justice under the laws. But it is now different with boards of appeal under zoning laws. When a man wants special privilege he appeals, and it frequently happens that the board of appeals grants the appellant exemption from the law. It has also happened that the courts have upheld the board of appeals, though in many cases it has been otherwise.

It is therefore not out of place to state again the function of a board of appeals. The board is like a court of equity, which passes upon problems in which the law is not, often cannot be, specific. For example, a man has a 30-foot lot between two developed lots where 10-foot side yards are required. He can't build on 10-feet of space, but that doesn't mean that he should be allowed to cover the entire lot with a high building and get all his light and ventilation from his neighors. They have rights and the community has rights. In such a case an appeals board should permit the man to build a bungalow, 20 feet wide, with the gables fronting the street and the rear yard so as to protect the others in their light and ventilation.

Such a variation overcomes a physical difficulty and prevents an unnecessary hardship, and yet protects the intent and purpose of the law. It is a variation under the law and within the meaning of the law.

When an appellant seeks to put a 15-foot building in an 80-foot district, or to put a store in a residential district, or to cover more than the allowed percentage of a lot simply to make more money, he is appealing for a special privilege, for permission to steal when the law says he shall not steal, No board with any proper sense of its function would grant such a permit. No court that looks to the results and its own peace of mind will uphold a board in such a decision. For if it is done for one, why not for all? And it is the function of neither a board of appeals nor a court, nor of both combined, to repeal laws.

In spite of this, seemingly intelligent men will ask, what good is a board if it can't do such things? A Yankee's reply should be, what good is it if it can do such things? Such boards are intended to meet special situations and see that justice is done—justice to the neighborhood and the town just as much as justice to the appellant. To grant exemption from the law is the crime of violating the law. If the law is wrong, it is not for the board of appeals to nullify it. A court may nullify a wrong law or a wrong application of a law. The only way a community can remedy a wrong law is to repeal it or amend it. It isn't the business of a board of appeals to amend a law. There is a legislative body in every jurisdiction.

No man has a right to appeal for exemption from a law. If he does so, he should be denied. He has a right to appeal for a variation under the law and within the limits of the law, when, in a specific instance, he can make no reasonable use of his property except with such a variation. While law-enforcing bodies fail to see this untold damage will continue to be done.

—From the last Annual Report of the Division of Housing and Town Planning of the Massachusetts Department of Public Welfare.

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Snow Removal in the City of Detroit

By JOHN W. REID

COMMISSIONER, DEPARTMENT OF PUBLIC WORKS

A HEAVY snowfall in the streets of a city interferes most seriously with pedestrian and vehicular traffic, fire protection and police department equipment. Deep snow, a sudden thaw, or the gathering of ice on walks and pavements, causes great annoyance and frequently subjects pedestrians to falls and injuries. The constant trampling of this snow by pedestrians and heavy vehicular traffic in the event of a slight thaw results in this slush and mud being dragged through public buildings, large department stores and other business and shopping places and is very detrimental to the health and cleanliness so much striven for in our modern cities. In case of a thaw followed by freezing weather, where the snow has not been promptly removed, the situation is still further aggravated, especially in the heavily congested walks and streets of our business sections.

When the Weather Bureau predicts a heavy blizzard or snowstorm, the Detroit Department of Street Cleaning is already prepared for this emergency, and all its efforts are concentrated on the one purpose of speedily removing the snow in order to keep the streets and intersections, as well as safety zones, open for pedestrians and vehicular traffic. It is the aim of the Superintendent of Street Cleaning, with his specially organized and trained force, to keep just one step ahead of a snowstorm. Long before the approach of cold and freezing weather, instructions have been issued to all the division superintendents and foremen so that these men are ready and on the alert at the first indication of snow or a snowfall of 2 inches.

Snow-Cleaning Headquarters

The snow-cleaning headquarters in Detroit are located in the downtown and central district at 17 East Woodbridge Street, from which point all snow-removal activities are directed. At the first indication of an approaching snowstorm or a snowfall of 2 inches the force of 70 foremen, divided into two shifts, have instructions to get in touch immediately with snow headquarters, where they receive final instructions and are informed just when to report.

Organizing and Detailing Field Forces

The foremen who must report at headquarters are assigned a gang of men and supplied with a record form showing the number of men in the gang, the number of trucks assigned, the location where the men are to work, and the type of work, that is, whether they are to do hand cleaning, load, pile, or do machine work. This record form is divided into two sections, the top portion filled out with the aforesaid data and a similar space provided on the remaining half of the report which the foreman must fill in when he finishes his shift, in order that the directing or operating personnel at headquarters can determine just where the first foreman and his men left off and where the succeeding foreman on the following shift is to start. He is also supplied with a form headed "Snow and Ice Time Record Sheet," which has space for the foreman's name, date, where assigned, starting time, and a place for name, lunch period, starting and quitting time, etc., of each employee in the gang, also the license numbers of trucks and the truck owners' names. When leaving headquarters, each man assigned to a gang is furnished with a time card, which is punched every hour by the foreman. These are prepared in two different colors, one for the day and the other for the night shift. These cards will show the exact number of hours worked. The laboring force are paid off in cash at the end of each day's work upon their return to headquarters, and the truck equipment is paid for at the end of the week.

Labor Available

The force available for labor service is obtainable from the floating population and from common labor that is out of work at this time of the year. This labor represents all nationalities employed in the removal of snow. They are paid at the rate of 55 cents per hour. From 200 to 800 men are at times employed, according to demand.

Supervising Force

As stated before, our foremen are divided into two shifts, each one under the head of a division superintendent and assisted by another official of similar capacity. The regular duties of these division superintendents are delegated to one of their foremen, and the foremen assigned to snow-removal work are relieved by doubling-up their regular assigned sections and in some cases detailing some other reliable handy-man as acting foreman during his absence, in order that work may continue and not be neglected in the various parts of the city.

Equipment

Within two hours of the first approaching sign of a snowstorm, all necessary equipment to carry on this work is at our command. This equip-

DIVISION OF MUNICIPAL WASTE

INSTRUCTIONS - SNOW REMOVAL

SHIFT: NO. MEN:

FOREMAN: NO. TRUCKS.

DATE: 192 NO. TEAMS:

CLEAN BY HAND	CLEAN BY MACHINE	PILE SNOW	LOAD SNOW	LOCATION OF DUMP

STREET	FROM	TO

REPORT OF WORK DONE

CLEANED HAND	CLEANED MACHINE	SNOW PILED	SNOW LOADED	LOCATION OF DUMP

STREET	FROM	TO

1-14-27 JFK

THE INSTRUCTION FORM ISSUED TO FOREMEN IN DETROIT TO INDICATE METHODS AND DISTRICTS TO BE CLEANED AND EXTENT OF WORK DONE BY THE FOREMAN AND HIS CREW

DEPARTMENT OF PUBLIC WORKS
Snow and Ice Time Record Sheets

Foreman's Name ..... Date .....

Assigned To ..... Starting Time .....

NUMBER	NAME	Lunch Period	Quitting Time	Hours Worked	Amount Paid
Truck Number	Owners Name				

THE FOREMAN'S SNOW AND ICE TIME RECORD SHEET FOR LABORERS AND TRUCKS

ment consists of three Barber-Greene snow loaders, one side loader, and one Nelson snow loader; two clamshells and twenty-two snow-plows which are attached to city-owned trucks. There are also available six tractors and graders to use in this work. Privately owned truck equipment is called upon, and these truck owners furnish upon short notice from forty to sixty trucks provided with 9-yard capacity bodies.

Snow Maps Provided

At snow headquarters and in the possession of superintendents in charge of the work, there are two distinct kinds of snow maps on blueprints. One shows the downtown loop or business section where snow must be removed from streets, and the other, called the plow map, shows all highways and main arteries that are to be plowed. When a foreman has finished a certain stretch of thoroughfare, he calls headquarters, and by referring to this map he can readily be assigned with his gang to another stretch of highway that needs to be cleaned of snow. New maps are used for each snow, and the old one filed for record.

STARTED — QUIT

1:00	1:00
1:30	1:30
2:00	2:00
2:30	2:30
3:00	3:00
3:30	3:30
4:00	4:00
4:30	4:30
5:00	5:00
5:30	5:30
6:00	6:00
6:30	6:30
7:00	7:00
7:30	7:30
8:00	8:00
8:30	8:30
9:00	9:00
9:30	9:30
10:00	10:00
10:30	10:30
11:00	11:00
11:30	11:30
12:00	12:00
12:30	12:30

DEPARTMENT OF PUBLIC WORKS
DATE..... NUMBER..... HRS..... AMOUNT.....
Street Cleaning Dept.
Basement City Hall

FOREMAN'S HOURLY CHECK
1 2 3 4 5 6 7 8 9 10 11 12

FOREMAN .....

INDIVIDUAL TIME CARD, PRINTED ON PINK STOCK FOR THE DAY SHIFT, AND ON A PALE GREEN STOCK FOR THE NIGHT SHIFT

Concentration of Forces

The entire general snow-cleaning force is directed to give attention first to the downtown or business section and to clean the intersections and crossings as well as safety zones by the use of hand gangs. The plows are employed plowing the snow on the streets in windrows a few feet from the curb, where the snow is either picked up by snow loaders and from their conveyers dumped into trucks or is loaded by hand gangs onto trucks. After streets in the loop or business district are cleaned of snow, the forces give their attention to main thoroughfares and business arteries outside of the loop. In the residential and outlying districts, the local forces assigned there take care of crossings and safety zones wherever they find their attention is required.

Parked Vehicles

While this Department has experienced considerable trouble in cleaning many of its streets because of the parked car problem, it has received considerable aid through the cooperation of the Police Department and the assistance of its officers in keeping streets clear of parked cars that would otherwise hinder the rapid and efficient cleaning of snow from these streets. On some of the most important thoroughfares the officers assist in roping-off a given area so that the street can be cleaned of snow without the interference of public vehicles, and using specially made standards warning motorists that this area is not to be used for parking, which has been of great help to our operating forces in cleaning the streets of snow.

Future Plans

The Department is constantly keeping prepared for the future by the adding of such equipment as necessary, enlarging the area to be cleaned by plows, and in general keeping up with the growth and expansion of the city. The various maps used in connection with snow-removal work are being constantly revised and brought up to date. Owing to the method of snow removal, the city of Detroit has experienced no tie-up of traffic due to the snow for a number of years.

Who Pays the Cost of Street Paving?

IN only two of the 60 cities of New York State is the cost of street pavement borne entirely by the city, according to a survey conducted by the State Bureau of Municipal Information.

Hudson and Plattsburg are the cities that observe this policy, while the following nine municipalities divide the paving costs equally between the city and the property owners on the improved streets; Auburn, Binghamton, Cohoes, Glens Falls, Little Falls, Middletown, Port Jervis, Watertown and White Plains.

Among cities which assess more than half of the paving costs against the abutting property, the survey discloses that in 18 the property owners on improved streets are required to pay two-thirds of the paving costs. Municipalities in this group are Corning, Cortland, Fulton, Geneva, Hornell, Ithaca, Lockport, Mount Vernon, Newburgh, New Rochelle, Norwich, Ogdensburg, Oneida, Oneonta, Oswego, Poughkeepsie, Salamanca and Utica. Gloversville and Kingston go a bit further and assess 75 per cent of the cost on contiguous property. Lackawanna pays 56 per cent of the expense and property owners 44 per cent under a system slightly different from that in vogue elsewhere.

In a final group, however, there are 14 cities that assess the paving cost against the property owners in the improved streets, the municipalities not sharing in the cost at all. This policy is adhered to in Albany, Buffalo, Dunkirk, Jamestown, New York, Niagara Falls, Olean, Rochester, Rome, Schenectady, Syracuse, Tonawanda, North Tonawanda, and Yonkers.

Aids to Better Lighting of Airports

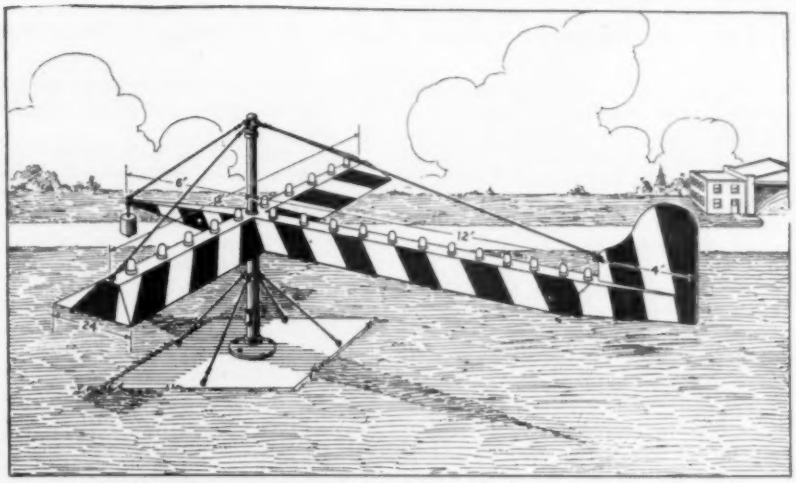


FIG. 1 – SUGGESTED DESIGN FOR ILLUMINATED WIND TEE USING 25-WATT INCANDESCENT LAMPS WITH GREEN WEATHERPROOF HOODS SPACED ON 12-INCH CENTERS

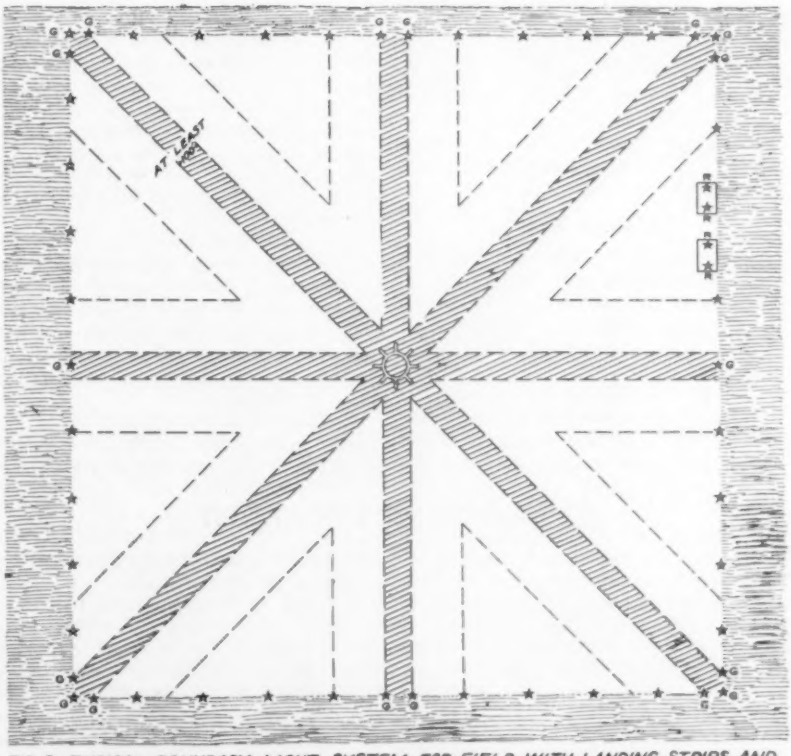


FIG. 3 – TYPICAL BOUNDARY LIGHT SYSTEM FOR FIELD WITH LANDING STRIPS AND RUNWAYS BUT AVAILABLE IN ALL DIRECTIONS IN DRY WEATHER

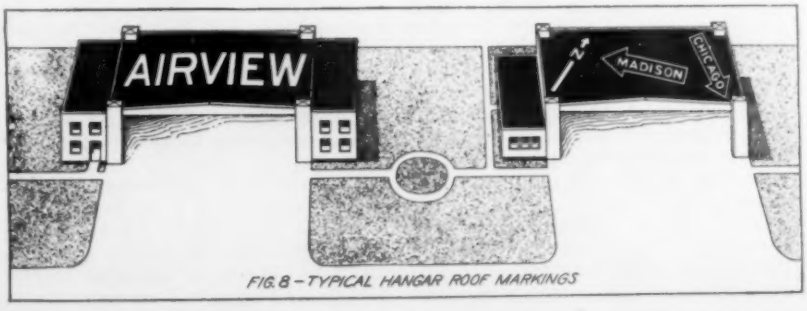


FIG. 8 – TYPICAL HANGAR ROOF MARKINGS

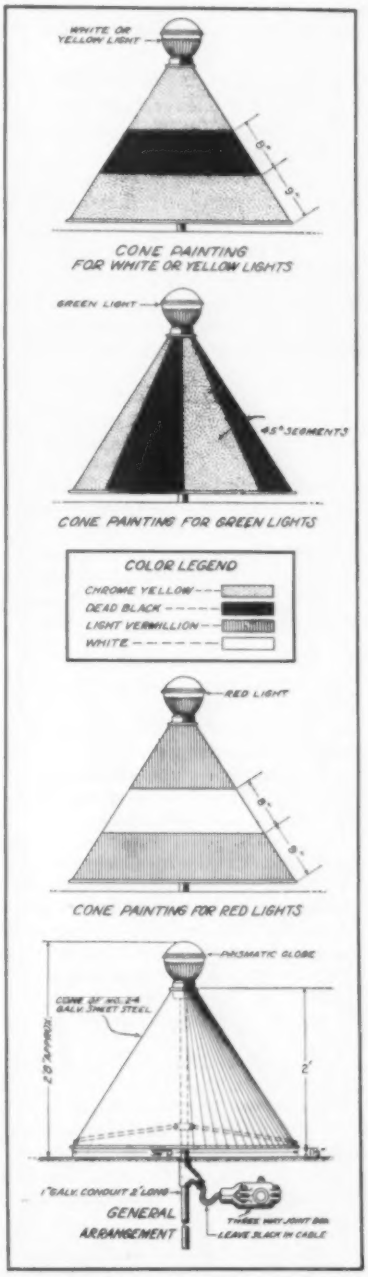


FIG. 5 – BOUNDARY LIGHT INSTALLATION WITH PAINTED CONES FOR DAY MARKING

FUNDAMENTALS OF AIRPORT LIGHTING OUTLINED

The accompanying drawings are among those reproduced in a new Department of Commerce pamphlet entitled "Notes on Airport Lighting." Prepared by Colonel Harry H. Blee, Chief of the Division of Airports and Aeronautic Information of the Aeronautics Branch, the notes set forth the requirements of the Department's airport rating regulations relative to airport lighting. They explain fully the primary rules to be observed in laying out an airport lighting system and should be consulted by all city officials engaged in that task. Copies of the pamphlet may be obtained by writing the Aeronautics Branch at Washington, D. C.

Turning Good Boys Into Bad

Housing Conditions and Spare Time Activities Important Factors in Juvenile Delinquency

IN a district of some 220,000 population in the lower East Side of Manhattan, which had led the borough over a period of several years in percentage of juvenile delinquency, a study of environmental factors has been made for the Crime Commission of New York State by its Sub-Commission on Causes and Effects of Crime. In a 93-page report of this study, published in April, 1929, recommendations are made of nation-wide interest and importance:

1. Housing

The relation of bad housing to delinquency has been clearly indicated in this study. Every effort should be made by the authorities to speed a housing program of broad scope, that will replace old-law tenements with modern structures. Private individuals and organizations should also be encouraged to participate in this housing program, as one progressive step in delinquency prevention.

2. Schools

a. Schools can meet the problem of delinquency in many ways and should do so. The delinquents themselves require sympathetic, patient study by specialists in child guidance. The school curriculum should be adapted to meet the needs of delinquents lacking capacity for or interest in the usual subjects. Conflicts with school authorities require careful study and treatment rather than simply commitments to disciplinary schools. Clinic facilities should be set up within the schools to carry out such a program of prevention. Adequate provision should be made for the service of visiting teachers and for vocational guidance and placement.

b. School building and yards should be utilized to the fullest extent, winter and summer, day and evening. The Board of Education should adopt as its policy the supervision of recreation and community centers by specially-trained leaders, distinct and separated from the teaching staff.

3. Supervision of Delinquents

a. A coordinated program of case study and supervision of spare time is greatly needed in the treatment of juvenile delinquency. Case work is at present being done by one group of agencies and recreation work by another group with very little contact between the two. It is recommended that in those districts where there is a considerable amount of juvenile delinquency that a neighborhood program of delinquency prevention be inaugurated through a council consisting of the various agencies for civic betterment operating in the neighborhood. Such a council should provide means for constant interchange of experiences and case information among the rank-and-file workers of the various agencies, and should provide for a joint follow-up, consistently and over long periods, of individual delinquent children, or families some of whose members have been delinquent. In order that workers in the recreation field may better participate in this program, it is recommended that agencies employing recreation workers train certain workers in case work methods, and attract persons especially qualified for work with problem children by offering adequate compensation. The schools of social work are urged to devise curricula to provide qualified persons with the necessary training for this work.

b. Special means must be devised for an emergency program that will reach older delinquents who do not respond to ordinary programs. It is suggested that study be given to the feasibility of competing in poor neighborhoods with commercial pool rooms, on a business basis, for the patronage of this group.

c. Vocational opportunities and vocational training for delinquents should be extended. Assistance should be given by the community to agencies specializing in child guidance work, in the development of facilities for vocational guidance and placement.

4. Spare Time

a. Since misguided energy and the lack of wholesome spare time pursuits, are so often factors in delinquency the facilities for providing supervised recreation must be extended to reach every child in the area, instead of two in five, as it now stands. Private philanthropy will undoubtedly shoulder part of this additional burden, but it is strongly urged that city authorities accept responsibility for the program and that local residents sponsor it, using the schools and playgrounds for this purpose.

b. In areas of greatest delinquency, well-equipped boys' clubs, under trained leadership and with modern employment, medical and vocational facilities should be established through private philanthropy.

c. Illegal street trading, at late night hours, by children under sixteen must be stopped. The police must be warned to enforce the laws governing street trading and the Bureau of Attendance of the Board of Education should be provided with an adequate staff for protective work, particularly among children engaged in the sale of newspapers. It is suggested that enforcement efforts be directed toward breaking up illegal sales to minors by newsdealers at newspaper distribution centers and that the law governing street trades be strengthened by making it a misdemeanor for adults to sell papers to children under 16 for re-sale after legal hours.

d. Poor type moving-picture theaters and pool rooms are constantly violating health and fire laws as well as the laws on admission of minors. These require much stricter supervision by the police and by the inspectors of city departments, to whose attention existing evils are called by this report.

It is urged that the motion picture industry itself set up minimum standards for theaters, to include daylight screens, separation of boys and girls, and adequate chaperonage inside the theaters, and that the film exchanges refuse to distribute films to theaters failing to come up to these standards.

e. Dancing in municipally owned pavilions under proper supervision might be provided, as has been done in other cities.

Penalties vs. Prevention

IN the campaign against crime in recent years much discussion has been aroused by the so-called Baumes laws, enacted in New York at the instance of the state Crime Commission of which Senator Caleb H. Baumes has been the chairman. These laws, including the "habitual criminals" act whereby fourth offenders are given mandatory life sentences, have been widely heralded as desirable expressions of a stern and uncompromising attitude toward the criminal element, and have been copied in other states. On the other hand they have been criticised as productive of grave injustice to individuals; as lacking in logical relation to the circumstances of individual cases, with regard either to the offense or the offender; and as creating disrespect for law and defeating their purposes by their very severity and the difficulty of obtaining convictions.

In a recent address regarding the work of the New York commission, William L. Butcher, one of its members, referred to the Baumes laws as emergency measures that would probably not remain permanently on the statute books.

Although he held that these laws were necessary when passed and would probably be needed for four or five years longer, he asserted that the most important function of the commission was the study of the causes of crime, and preventive measures; he himself had consented to serve as a member only on condition that a study of the prevention of crime at its sources be included. He listed as major causes of crime the present industrial system, with "blind alley and one-track" jobs; congested areas; lack of spare-time supervision of youth; the decreasing influence of the home; inequalities in the administration of justice; and lack of vocational training in penal institutions.

Remedies would be forthcoming, Mr. Butcher suggested, if every man became personally interested in youth, and devoted his energies to projects for creating more wholesome opportunities for boys brought up in bad environments.

Izaak Walton Devotees Approve Sewage Treatment Program

By HARRY E. JOHNSON

CHEMIST IN CHARGE, SEWAGE TREATMENT WORKS, FLINT, MICH.

THE new sewage treatment plant of Flint has been operated with more than a fair share of success during the last year. October 10, 1928, is the anniversary of the day when Flint first realized the results of fifteen years of planning and endeavor to clean up its back yard. On this day the sewage flow was diverted from the Flint River to the completed first unit of the largest sewage treatment plant in Michigan. Flint has pioneered in the work of cleaning up Michigan lakes and streams to assist in attracting tourist traffic to this district.

The sewage disposal system now consists of many miles of intercepting sewers, a pumping-station with a capacity of 45,000,000 gallons of sewage a day, a sewage pumping-main, and the treatment plant proper. All sanitary sewage is collected at the pumping-station and from there is forced through the 50-inch steel pressure main to the sewage treatment works located 3½ miles downstream. The treatment plant proper consists of four two-story settling and digesting tanks with a combined capacity of 16,000,000 gallons per day. Through these tanks the sewage flows, leaving behind an average of 93 to 99 per cent of the settleable solid matter. The solid matter remains in the tanks and digests to a stable, dark-colored and practically odorless humus. The liquid matter, which is still loaded with bacteria of all kinds and a large quantity of dissolved organic matter, must still pass into the Flint River pending the completion of the filters or second unit of the plant.

These filters will serve as the home for countless millions of miscroscopic scavenger organisms which feed on the dissolved polluting matter, transforming the dark, disagreeable-smelling tank effluent to a clear, sparkling, odorless liquid. A final treatment with chlorine will kill all of the harmful bacteria remaining, leaving a clean, sanitary water practically as pure as the stream from which it was taken.

While the sludge deposits so noticeable in the Flint River in former years are now absent and the stream condition is infinitely better than before, the load is still greater than it can bear at times, and some odors have been noticed coming from the stream between the plant and Flushing during low dry-weather flows. It is therefore to be hoped that the near future will see the completion of this important addition to the sewage treatment works.

Sewerage

Flint is an industrial city which in the last fifteen to twenty years has risen from the small-town class to become the third city in the state, with a population of about 149,000. It is primarily an automobile manufacturing city, being the home of Buick and Chevrolet automobile and countless other allied industries such an automobile body works, spark-plug manufacturers, spring works, varnish works, and foundries. With this type of industry the most important industrial wastes are oil and grease, both acid and alkaline trade wastes, much of which is disposed of by the industries themselves and is kept out of the city sewers. At times, however, large quantities of oil and grease get into the sewers and offer a problem at the treatment works. Aside from this waste, the sewage is mainly a concentrated domestic discharge.

The city is sewered entirely upon the separate system with a rather thorough separation of surface water, so that practically no water from the streets enters the sanitary sewer. Roof water is gradually being eliminated through a rigid health department inspection, so that ultimately the sanitary sewage flow will include very little, if any, storm water. With a metered water-supply and a small amount of ground-water infiltration, the average sewage flow is only 9.62 million gallons a day, from a total connected population of about 120,000.

Treatment Was Much Needed

Sewage from the city after treatment at the sewage works is discharged into the Flint River, which has a drainage area above the works site of 980 square miles. The flow in the river varies from 82 second-feet average for the minimum extreme dry-weather months to about 1,400 second-feet average for the maximum months. The absolute minimum recorded flow gaged in October, 1920, was 58 second-feet, and even smaller flows than this no doubt have occurred at times, while spring flows have reached several thousand second-feet. Without sewage treatment the river was very badly polluted and during the low stages in the summer it became an open sewer with unsightly sludge deposits, bad odors and an entire absence of dissolved oxygen for several miles below the city.

An order from the State Board of Health several years ago to plan for the improvement of these river conditions was wholeheartedly agreed to, and the city began to plan and construct intercepting sewers, and following these a sewage treatment works. The protection of the water-supplies of several cities below Flint is also involved, the principal one being that of Saginaw. Located on the Saginaw River, into which the Flint River discharges, this city obtains its water-supply from the river and is now building a filtration and softening plant. It is important that the river be maintained in such a degree of purity that the load on this plant will not be excessive. For these reasons, and because of the desire of the city of Flint to maintain as nearly as possible the purity and beauty of the river, all the way through and below the city, Imhoff tanks, sprinkling filters, secondary tanks and chlorination apparatus have been included in the program of sewage treatment.

Pumping-Station

The sewage pumping-station, located at the west end of Third Avenue, houses the bar screens, grit chambers and sewage pumps. The two screen and grit chambers are built parallel, so that either one may be drained and cleaned while the other is in operation. The pumping equipment consists of two 10,000,000-gallon daily and two 15,000,000-gallon daily capacity American sewage pumps, all electrically driven with 125- and 200-horsepower motors. An auxiliary power supply unit consisting of a Worthington 17 x 25 crude oil full diesel type engine connected to a 250-kva. Westinghouse generator is provided for emergency use in case of failure of the local power supply. This unit is also used for a short time daily to knock off the peak of the flow and in that manner materially reduce the power demand charges and pumping expense.

Sewer-Main

A 50-inch steel riveted force main carries the sewage to the treatment works. Blow-off connections are provided at all low points so that proper cleaning of deposits of sand and solid matter can be obtained whenever necessary. In addition, air vents are placed at high

points along the line to reduce friction losses from this source and to provide emergency air inlets in case of bad leaks or when draining the line.

Sewage Treatment Works

The sewage treatment works are located in the center of a 135-acre tract of land lying between the Flint River and the Beecher Road about one mile northwest of the city limits. The plant is quite well isolated, the nearest dwelling being about ¼-mile distant.

A 50 x 29-inch Simplex venturi meter is provided for measuring sewage flows, the meter register and seals being located in the administration building. The venturi tube connected to the main is housed in an underground chamber about 125 feet from the building.

At the gate-house the sewage rises in a surge well and flows over low weirs into two channels which in turn connect with 30-inch cast iron pipe lines, each line leading to two of the four Imhoff tank units. Each 30-inch line divides between the two tanks it serves into two 24-inch cast iron pipe lines, each going to the center of a tank unit.

With piping to each tank of identical size and length, the flow automatically divides equally among the four tanks under any rate or condition of flow. This obviates any adjustment of valves or weirs and insures a proper distribution at all times.

The settled effluent is collected into another system of piping leading back to the gate-house, where it is discharged into the bypass sewer directly into the river. When the filters are built, it will be discharged to the filter dosing tanks. Quarter-inch mesh screens are provided at the gate-house to take out floating objects that might clog the filter nozzles. The screens, four in number, each with a net screen area of 19½ square feet, can be lifted by means of a chain fall and swung over on a washing floor, where screenings will be washed off with a hose and flushed out onto a sludge bed.

Imhoff Tanks

Each of the four radial flow Imhoff tanks is designed for a capacity of 4,000,000 gallons daily. Each tank consists of 18 hexagonal cells with the outside ring of cells acting as the structural frame. Walkways make every point of the tanks accessible and partially prevent waves or short-circuiting wind effects.

The sewage is brought into the tank at the center, divides and flows radially in every direction with a decreasing velocity toward the outside walls, where it is drawn off through twelve orifices placed around the walls. Each orifice consists of a 3 x 8-inch opening in a steel plate placed over the outlet of a pipe tee in a vertical riser pipe. These are so adjusted that each orifice will draw the same amount, so that a uniform flow of sewage from the center of the tank to the outside wall will be maintained in all directions.

Advantages of this arrangement are that the unusually slow rate of sewage flow through the sedimentation compartment near the outlet aids in the removal of the finer suspended particles that are never allowed to settle out in a tank, giving a constant velocity through the sedimentation compartment. The gradual reduction in velocity also tends to stop eddy currents, thus increasing the settling efficiency.

The tops of the outlet pipes are left open as emergency overflows, and a scum baffle is placed around each orifice to prevent oil, grease and other floating material from going with the effluent to the filters. Near each outlet orifice is a skimming-gate, set in the tank wall, which skims off floating oil and grease and discharges them through the sludge piping onto the sludge bed set apart for this purpose. These gates consist of especially designed 12 x 12-inch downward opening sluice-gates, so that the top of the gate comes to the level of the sewage and acts as a skimming-weir. There are twelve of these in each tank.

Detention Period

The sedimentation compartment of each tank is designed for a 4,000,000-gallon daily rate, figuring on a 3-hour detention period, with 4,000,000 gallons assumed to come in 18 hours, making a nominal 4-hour detention period based on the average flow per 24 hours.

The sludge compartment of each tank is divided into eighteen hexagonal pockets, six in the first row or ring around the inlet, and twelve in the second row around the outside of the tank. The inner row of pockets, which receive the heavier, more quickly settling sludge, may be emptied by an air lift and discharged into one of the outer pockets. This mechanical moving of the heavier sludge from the inner to the outer cells improves and shortens the digestion process and eliminates the necessity of periodic reversal of flow. With the decreasing velocity, further settlement of fine material takes place in the outer pockets.

When the sludge is ready to be drawn off, this can readily be done by gravity from the outer pockets of the sludge beds. The total sludge volume is based on a unit volume of 2.75 cubic feet per capita. Each tank is designed for a population of 40,000.

The gas vents, eighteen in each tank, cover 10½ per cent of the total area of the tanks. They are carried up to a point 5 feet above the normal sewage level and 2 feet above the sidewalks.

Sludge Beds

The sludge beds, 24 x 125 feet in plan, 40 in number, are built with tile underdrains covered with gravel and sand, with division walls of cypress planks held by means of precast, slotted concrete posts. The total area of sludge beds is based on a unit of 0.57 square feet per capita contributary population. The entire plant is figured for 160,000 people. A 24-inch gage industrial track is laid in each bed and connects to a track around the plant which leads to a ravine nearby where the sludge is dumped.

Plant Water-Supply

There is a complete water-supply system on the grounds, from which water is supplied to hydrants conveniently located about the tanks, to the venturi meter and to the administration building. The supply system consists of a 50,000-gallon elliptical-bottom elevated water-tank, the water being supplied by an American single-stroke deep-well pump with a capacity of 50 gallons per minute.

On aacount of the high chloride content of the water near the plant, it was necessary to sink the well some distance from the water-tank at a point where a satisfactory water was found. The well has an 8-inch bore and is 135 feet deep.

Administration Building

An administration building fully equipped with laboratory, office, toilet, shower and locker-rooms and garage for the use of the plant operator is located at the main entrance to the plant. An air-compressor and other small equipment are housed in the basement of the building.

Cost of Sewage Treatment Works

The total cost of the plant, exclusive of the intercepting sewers, as shown in the following table, is $1,047,530.91. Based on the designed capacity of the

COST OF SEWAGE TREATMENT WORKS

	Cost	Designed Capacity	Cost Per Capita
Land, etc.	$17,433.38		
Pumping-station	219,650.41	320,000	$0.686
Pressure main	268,560.11	320,000	0.838
Disposal plant	541,887.01	160,000	3.387
	$1,047,530.91		$4.911

OPERATING COSTS FROM OCTOBER 1, 1927, TO DECEMBER 31, 1928

	Pumping-Station	Disposal Plant	Total
Labor	$12,624.31	$15,877.05	$28,501.36
Power, lights, etc.	14,156.26	1,275.06	15,431.32
Supplies	2,274.44	1,984.66	4,257.10
Special equipment	.....	167.50	167.50
	$29,053.01	$19,304.27	$48,357.28

units, this amounts to $4.91 per capita, not including the cost of land and rights-of-way.

As it has been estimated that an additional $500,000 will complete the project, the completed cost will be $8.04 per capita.

Operating Force

The regular operating force at the treatment works consists of the chemist in charge, an assistant chemist, two attendants and one laborer. Additional laborers are employed during the summer months to dispose of sludge. At the pumping-station, the force consists of a chief operator, three operators and three assistant operators.

The firm of Hoad, Decker, Shoecraft and Drury, who designed the plant, supplemented the plant work with many suggestions of an advisory nature during its first year of operation.

Cost of Operation

The total operating costs from October 1, 1927, to December 31, 1928, are: pumping-station, $40,089.72; disposal plant, $21,427.01; total for the 15 months of operation, $61,516.73. A better idea of operating costs may be obtained by taking costs from March 1 to December 31, 1928, during which time a full operating force was employed at the disposal plant.

Taking these figures as a basis, the total cost of operation per year would be approximately $57,670. Assuming the connected population is 120,000, the total cost of treatment per capita per year would be 48 cents. Spread over the entire population of the city, which is estimated at 152,000, the cost of treatment per capita per year would be 38 cents.

The cost of treatment per million gallons was $9.88 for pumping and $6.51 for treatment, making a total cost of $16.39 per million gallons. The power cost per million-gallon foot-head was 11 cents.

Plant Maintenance

All metal work about the Imhoff tanks, such as railing, exposed sludge line and gate-valve standards, was thoroughly cleaned and repainted the latter part of the year, and the underside of the gate-house roof was given a coat of paint to preserve it, as well as the outside wood trim of the administration building. The venturi seals in the basement and the other piping which showed signs of deterioration were painted.

All grass and weeds on the front half of the premises were mowed down and a considerable amount of grass and weeds was burned off the back half as well; all brush and rubbish adjoining Beecher Road was removed, and this resulted in a much neater appearance from the road.

During the spare time the slopes around the Imhoff tanks were dressed with sludge, smoothed off and seeded. The ground around the administration building was also filled in, dressed with sludge, graded and seeded. A thorough going-over with paint was given all pumps and motors at the pumping-station, and every effort is made at both the pumping-station and the treatment plant to maintain a neat appearance at all times.

Think of Snow Removal During Dog Days

You Will Feel Cooler Now and Have an Easier Time This Winter

IT is really good psychology to thing of cool things during hot weather, and, in addition, it is none too early to be giving serious consideration to the snow-removal problems of next winter. Just because last winter was one of light snowfall in most sections of the snow belt, you cannot bank on a sinecure this year. Preparedness is the only way to defend yourself and your city from the paralysis of business and other necessary functions of modern life caused by blizzards.

Not all of us can advertise as do California and Florida, "Winter with us and escape the blizzards." No matter how much of a pacifist you may be, you can't afford to sidestep preparedness for winter's attacks.

REMOVE THE SNOW TO PROTECT THE ROAD

Whether the snow is on a suburban highway or a city street, means must be taken to completely remove it from the traveled way, or chains will cause undue wear of the road surface in the ruts which are quickly formed. The two outer illustrations show ruts formed in hard-packed snow and ice, and the center view shows one way of removing snow from the suburban highway, a Caterpillar and Snow King rotary plow throwing the snow completely off the traveled way

Drainage Makes Charlotte's Vision of a Fine Athletic Field Come True

By RALPH H. HALL

LANDSCAPE ENGINEER AND SUPERINTENDENT OF PARKS, CHARLOTTE, N. C.

DIRECTLY in the rear of Charlotte's beautiful Senior High School and less than a half-mile from the Municipal Center of the city there was, until March, 1928, a tract of land, comprising approximately eight acres, most of which was typical marshland.

For several years the School Commissioners had allowed a portion of the tract, which was owned by them, to be used for a free dump, in the hope that ultimately they would be able to use part of it for a small playground. The tract was bisected east and west by a huge open ditch and bounded on the west by Sugar Creek. The ditch carried practically all of the storm drainage from the Independence Park section of the city, and the creek is Charlotte's main storm drain outfall.

A Creative Imagination

To James A. Houston, Chairman of the Building and Grounds Committee of the Board of School Commissioners, belongs the credit for the visualization of the entire tract as a modern and complete athletic field. Some difficulty was encountered in locating the unknown owner of the remaining portion, but a thorough search of the records showed that it was owned by the city under the control of the Park and Recreation Commission. Mr. Houston, together with W. R. Foreman, Chairman of the Finance Committee of the School Board, Dr. John Hill Tucker, Chairman of the Park and Recreation Commission, and the writer, made an inspection of the land and all agreed, enthusiastically, that Mr. Houston's vision could be made a reality. The full cooperation of the two commissions was pledged and, as the Superintendent of Parks and Landscape Engineer, the writer immediately made a topographical survey.

HOW THE SITE OF THE PRESENT ATHLETIC FIELD APPEARED BEFORE DEVELOPMENT

Considerable imagination, vision and planning were required to picture this piece of waste land as a satisfactory field for sporting events

CHARLOTTE HIGH SCHOOL ATHLETIC FIELD AS IT APPEARS TODAY

The open-air school is in the center background on the edge of the running-track. A small portion of the pool and fountain presented by the 1929 Senior Class may be seen in the extreme right foreground, and the statue of the American Doughboy is located in the triangle bounded by the streets on the right

Obstacles Encountered

The major difficulties to be overcome were as follows: the removal of the open-air school which nestled on a spot of high ground directly in the center of the tract; the control of Sugar Creek so as to eliminate the probability of flood damage when the creek was on a rampage (in prior years over one-third of the tract was under water with each heavy rain); the drainage of the field proper so as to eliminate the natural wash towards the school building; and, as shown by the survey, the obtaining of approximately 10,000 yards of dirt necessary to make the fill desired. Also there were two lines of power transmission crossing the field, and to the Southern Public Utilities Co. and the Southern Bell Telephone & Telegraph Co. thanks are due for their prompt acquiescence to place these lines paralleling the creek, on its banks and on the northern property line.

The completed plans specified for the track a 220-yard straightaway 18 feet wide, with a quarter-mile oval 15 feet wide. Inside the oval and paralleling Cecil Street as nearly as possible, the football field and baseball diamond are located, as are also the jump-pits, pole vault, etc. Portable bleachers will be used for a year or two and it is hoped that in the very near future the city will be able to erect a concrete stadium against the bank at Cecil Street and over the creek on the western margin of the tract.

The Work of Construction

The first step in actual construction was the installation of a storm drain, so as to close the open ditch transversing the field. Armco corrugated iron pipe was selected for this storm drain because of satisfactory results obtained with it in previous improvements, and an order was immediately placed for 324 feet of 48-inch paved invert pipe. The open ditch was almost 400 feet to the creek and, as the contract bid for the hauling, ditching, installation and filling was 90 cents a lineal foot, the line to the creek was straightened at a considerable saving.

The entire northeast section of the

tract was extremely high ground. The original plans were to move the open-air school to a site across Cecil Street, but this could not be accomplished because the City Commissioners were desirous of using that site for the new municipal auditorium. Hence, the school was located in the northeast corner—admirable in every respect except for losing the space. Early in May a steam shovel, fifteen teams and a number of laborers were put to work on grading, removing the trees, etc. Over 1,000 yards of rock was taken out midway of the field and adjacent to Cecil Street, and another 1,000 yards was obtained from the Department of Public Works, which was cutting Park Drive through to Cecil Street. Still another 500 yards was purchased. All this rock was used to riprap the banks of Sugar Creek and to hold the fill. Old residents reported that the subsequent fall floods were the worst in the history of the city. Yet no damage was done to the field, the bank holding everywhere while the flood water raged. By erecting a bridge over Sugar Creek, 5,000 yards of dirt was obtained from the construction of the new telephone exchange building, and another thousand from the Park Drive work. With these amounts and some 17,000 yards which was moved on the tract, the rough grading was completed.

THIS OPEN STREAM CROSSED THE FIELD BEFORE DEVELOPMENT

IT WAS STRAIGHTENED FIRST, AND WAS THEN ENCLOSED IN IRON PIPE

The Arrangement for Permanent Underdrains

The next step was the subsurface drainage. A field was wanted which would be available for play within thirty minutes after a heavy rain. A visit to several other lately developed fields was found extremely helpful, and as a result it was decided to install approximately 2,100 feet of 8-inch perforated pipe. This pipe, laid at a contract price of a fraction more than 18 cents, complete, was laid down paralleling the east and west margins of the football field on 40-foot centers, each line 160 feet long, with outfalls in the center of the field and at the southern end. This arrangement was necessary because of the terrific amount of rock encountered, and it also provides maximum drainage where needed, with a minimum of cost. The grades throughout were so set that it was possible to use the entire subdrainage system for draining the oval and straightaway.

Protecting Against Flood

In past years there had been considerable difficulty in keeping the flood waters of the creek from soaking through the bank west of the school building and flooding the basement. To prevent recurrence of this feature there has now been installed, immediately in the rear of the building, a network of 8- and 15-inch perforated pipe, which, together with the surface drainage, is led to two large automatic pumps which return the water to the creek. This arrangement, too, was 100 per cent successful during floods that have occurred recently.

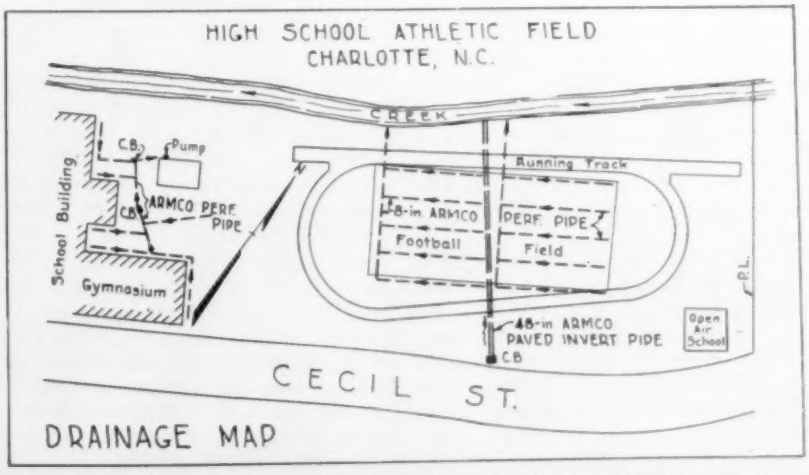
Other Improvements

Completely surrounding the tract, a 7-foot Page fence was erected, and inside this fence the playing field was enclosed with large hard maples, shrubbery in variety, a hedge and sodded banks.

In the rear of the school and immediately adjacent to it, there is now under construction an open-air study hall. Directly in the center of the plot is a beautiful octagonal pool and fountain, the gift of this year's senior class. Pergolas and benches are being built and the bulk of the shrubbery has already been planted.

As a final gesture, on the triangular plot formed at the intersection of Cecil Street and Park Drive and commanding a view of the entire field there has been placed the statue of the American Doughboy, which formerly stood on the old Court-House grounds. The plot surrounding it has been appropriately graded and planted.

The vision of Mr. Houston and his associates is fast becoming a reality. A worthless tract of marshland has been converted into a beautiful and modern athletic field which will be of inestimable benefit to the youth of this growing city, and it is believed that a minimum of $150,000 has been added to the valuation of the property.



A DRAINAGE SYSTEM WAS PLANNED WHICH WOULD MAKE THE FIELD AVAILABLE FOR USE 30 MINUTES AFTER A HEAVY RAIN

Public Garages and Filling Stations: Their Proper Location and Legal Control

By JOHN P. FOX

In What Sections or Zones of Cities and Towns

IT goes without saying that public garages should be excluded from residence sections, on account of the noise, fumes, danger to children, danger from fires and other accompaniments which make them injurious to residential districts. As to whether public garages should be permitted to be located indiscriminately in business districts, the experience of New York City in dealing with this phase of the subject may be of interest.

When New York City was zoned, in 1916, it was at first proposed by the Zoning Commission to permit public garages in any business districts. But the nuisance feature incident to this indiscriminate location was so great that the Commissioner finally decided that public garages should be relegated as far as possible to the unrestricted districts of the city, and a number of small unrestricted districts were established throughout the city for the special purpose of providing convenient locations for public garages, adjacent to residence and business districts, but not so near as to cause any injury. They were permitted in business districts, only in one location—where there already existed a public garage or a public stable in a business block between two intersecting streets, and even then it was necessary to get the permission of the Board of Appeals, which has the power to refuse a permit if the need of another garage in the street is not clearly shown or if serious objections are raised by adjoining owners.

After a year's experience with zoning in New York City, the great demand for sites for public garages necessitated further provision for them. Power was therefore given to the New York Board of Appeals to permit in a business or residence district the erection of public garages, provided a petition filed showed the acknowledged consents of the owners of 80 per cent of the property lying, as a rule, within 200 feet of the proposed garage. But in order to limit this privilege to cases where public garages were properly unobjectionable, a petitioner, even if he obtained the consents of 80 per cent of the adjoined owners, was not granted a permit for a public garage as a matter of right. For the granting of a permit was still left to the discretion of the Board of Appeals, and even if the Board decided that the issuance of a permit was warranted, it was required to fix the maximum size or capacity of the garage and also to impose approximate conditions and safeguards upon the construction and use of the garage.

The situation in New York City today, then, is that public garages can be built anywhere in unrestricted districts, which means the industrial districts of the city, and in business and residence sections only by permission of the Board of Appeals, under restrictions which will be described later.

Keeping Them Where They Belong

In this article, which is based on a recent address by the author before the Westchester County (N. Y.) Planning Federation, Mr. Fox discusses the proper location of public garages and filling stations under five heads:

1. *In What Sections or Zones of Cities and Towns*
2. *On What Streets*
3. *On What Building Lines*
4. *Near What Other Buildings*
5. *What Means of Regulating Location*

On What Streets

It has been my experience, in zoning a considerable number of cities and towns, that public garages, as a rule, should be kept off the principal business streets and main thoroughfares and that the best location is on a side street little used by either pedestrians or motor vehicles, with the garage situated near the corner of a main thoroughfare, so as to be convenient to passing vehicles and readily seen, without having the objectionable features incident to a location on an important artery.

The objections to having public garages on main streets are so obvious that it seems hardly necessary to enumerate them, but they are briefly these: Where there are many pedestrians, it is undesirable to have vehicles crossing the sidewalk. Vehicles stopping on the street in front of a public garage, for the purpose of getting repairs made or obtaining gasoline or other supplies, tend to block traffic, and there is also a temptation for garages to use the street in front of the premises for storing cars for short or long periods, especially where a garage does a considerable transient business. Vehicles entering or leaving a public garage tend to block passing traffic and are a real element of danger where a public garage is located in the middle of a block, and cars are passing at any considerable speed. Sometimes used cars are exhibited for sale in front of garages, and I have seen the grass space on the principal boulevard in one city disfigured by cars on sale that properly belonged in a dump or junk yard. A public garage is obviously an undesirable neighbor for retail stores; and even if such stores are introduced into the front of a garage to act as a buffer between the street and the main storage space behind, there still remain sufficient objections to make it appear desirable to keep public garages off any main business street.

These objections to a public garage on a main thoroughfare are much less serious if the location is on a side street with little traffic. The argument that public garages should be situated where they can be readily seen and found by strangers does not seem to outweigh the objections of a too prominent location. Filling stations, it may be conceded, should be located on the line of main travel. But if a public garage is situated on a side street adjoining a main thoroughfare, with adequate signs, such a location would appear to have all the prominence required by the nature of the business.

On What Building Lines

It is generally the custom to build public garages directly adjoining the sidewalks. This practice results in the most objectionable situation where all the selling of gasoline is done from pumps located directly on the sidewalk, a custom which causes the maximum congestion and confusion of the traffic in front of the garage. Fortunately, the illegality of all sidewalk pumps is being recognized more and more, and the New York Board of Appeals required all gasoline pumps in the case of filling stations to be set back not only within the building line, but 10 feet inside the building line, so that all cars while being served must stand clear of the sidewalk inside the building line.

Not infrequently, public garages are found set back from the building line,

especially in the outskirts of cities and towns, where land is plentiful and cheap and where gasoline is sold in front of such garages. This setting-back of public garages from the street should be not only encouraged, but required on every possible occasion. Where land is very expensive, as in the heart of cities, and where lots are only 100 feet deep, it may not be economically just to require setbacks for garages; but such setting-back certainly should be required wherever land values permit, in order to have all cars stopping at garages for any kind of service, and all cars stored at garages, kept off the streets at all times, leaving the full street roadway available for passing traffic and for the cars entering and leaving the garage itself.

Wherever it is impractical to have public garages set back from the building line, there is a requirement in the interest of safety to pedestrians which I should like to suggest, and that is, having the sides of the doorway, where it adjoins the sidewalk, cut away several feet on each side, so that pedestrians can see a car emerging from a garage before it actually reaches the sidewalk and so that the operator of such a car can see the sidewalk on each side of the doorway before he is actually on it—a safety precaution that is especially desirable when a car is backing out of a garage. This idea is the application to a doorway of the principle of corner clearance or vision clearance which originated with Robert Whitten, the consultant, a principle which is now quite widely used in zoning to prevent obstructions on street corners, in the way of buildings, walls, fences, or vegetation, which cut off the view of one street from another.

Near What Other Buildings

As to the relation of public garages to other buildings, the question is whether such garages should be prohibited altogether in the vicinity of such buildings as churches, schools, and hospitals. Such a prohibition was initiated in New York City in 1919, three years after zoning was first established, when the following paragraph was added to the Building Zone Resolution:

"No garage for more than five cars, which means a public garage, may be erected or extended, and no building not now used as a garage for more than five cars may have its use changed to a garage for more than five cars, on any portion of a street between two intersecting streets in which position there exists an exit from, or an entrance to, a public school; or in which portion there exists any hospital maintained as a charitable institution; and in no case within a distance of 200 feet from the nearest exit from an entrance to a public school; nor within 200 feet of any hospital maintained as a charitable institution. This protection shall also apply to duly organized schools for children under 16 years of age, giving regular instruction at least five days a week for eight months or more each year, owned and operated by any established religious body or educational corporation. This limitation on the location of garages shall apply to unrestricted as well as business and residence districts."

This prohibition of public garages near schools in New York City was afterwards extended so as to apply to filling stations, but filling stations were never required to keep any special distance away from hospitals, probably because there is so little to burn about a filling station. The principal object of the prohibition in the case of schools, is to reduce the hazard to children going to and from school, by lessening the number of vehicles using the streets in the vicinity of such schools, and especially to prevent vehicles from using the streets in the vicinity of such schools, and from crossing sidewalks in entering or leaving public garages or filling stations. In the case of hospitals, the prohibition was imposed to reduce the danger from fires and from the noise and fumes which a public garage might bring into the neighborhood of a hospital. The minimum distance of 200 feet within which no public garage or filling station could be erected or extended has been held by the courts to be measured along the sidewalks in the case of schools, but in the case of hospitals to be an airline distance; so that public garages and filling stations must be kept somewhat farther away from hospitals than from schools. The prohibition is an absolute one and cannot legally be set aside or modified by the Board of Appeals.

In some cities, the prohibition of public garages within 200 feet of schools and hospitals has been extended so as to apply also to churches, public libraries and playgrounds.

The question has been raised as to whether the prohibition of public garages within 200 feet of any school or hospital is justified as a fire prevention measure, and the criticism has been made of the New York requirements that they are too severe. It is pointed out that the fire hazard of a public garage properly equipped with automatic sprinklers is comparatively small, as sprinklers have been very successful in extinguishing garage fires. It is also pointed out that automobiles have less volatile than formerly. Against these arguments it must be noted that New York City and the surrounding communities are still having very serious garage fires, and that it is impossible in a zoning ordinance to incorporate all the requirements as to sprinklers and the materials, construction and maintenance of public garages that would render them perfectly safe neighbors for public schools and hospitals. As there is plenty of land available on which to construct public garages without locating them within 200 feet of schools and hospitals, there appears to be no good reason for abandoning this prohibition in zoning ordinances.

What Means of Regulating Location

The only really effective method of regulating the location of public garages is by means of zoning ordinances. The licensing of garages by public authorities and by fire departments was in vogue before zoning was established in this country, and was quite effectively used in some localities, but had in general one serious drawback—that the licensing authority could only grant or refuse a permit for a public garage and could not, or did not, impose any conditions for the protection of adjoining owners. Public hearings were held by the licensing authorities as a rule, and abutting owners were afforded every opportunity to protest against the building of a public garage; but it was not the custom, where garages were merely given a license to regulate the location of entrances, the materials used in construction, the appearance of buildings, the matter of signs, and other things which may greatly affect the desirability or undesirability of a public garage.

Under the authority given to cities, towns, and villages by zoning laws, it is possible to regulate the location of public garages far more effectively than ever before, and to fix such conditions in granting permits, that garages can sometimes be erected in places where they would be very undesirable except for the restrictions imposed. For example, an owner might petition for a public garage on a main business street of a city or town, running back along a side street. The plans might show entrances and exits across the sidewalk of the main street, conspicuous signs, and other features which would make the building very objectionable as planned. Under the powers now afforded by the zoning laws, conditions can be laid down which might make a public garage on such a site wholly unobjectionable, such as requiring the whole frontage on the main street to be occupied by retail stores, permitting only approved materials and design, allowing entrances only on the side street, and only one sign on the front, which must be of a kind in keeping with other signs on adjoining stores.

The proper authority for regulating the construction of public garages under the zoning laws appears to be the board of appeals, because this board is generally better equipped to handle such a matter than other municipal bodies or

officials, and because boards of appeal have acquired powers, through custom and court decisions, which make them especially effective in dealing with situations where protection needs to be afforded to a neighborhood and conditions imposed. Boards of appeal, for example, can regulate the external appearance of public garages by imposing conditions which, if incorporated in the body of a zoning ordinance, might be held to be purely esthetic and as such might be unwise to adopt or might even be thrown out by the courts. While boards of appeal have their limitations, the regulating of public garages appears to be one of their proper functions. Indeed, a board of appeals, under proper conditions, can deal so effectively with public garages that one would say that every public garage in every zoning district of a city or town should have to go to such a board for a permit to build, alter or extend.

This is not generally the custom under zoning ordinances, at least in the larger cities and towns, where public garages are generally allowed to locate, without any permit's being required (except from a bureau of buildings and perhaps also the fire department), in unrestricted and industrial districts and even in business districts. In New York City, for example, public garages can be built absolutely anywhere in the unrestricted districts, and the experience of New York City with garages in unrestricted districts indicates that perhaps the most convincing argument is to have all public garages come under the authority of boards of appeal.

The trouble with permitting public garages to be located in any district in a city or town without any limitations is that there are almost sure to be certain localities, even industrial districts, where a public garage proves to be out of place, or to be a real injury to the neighborhood, a fact which is discovered too late, after the damage is done. In New York City perhaps the worst examples of public garages in the wrong places are those erected in the middle of tenement house blocks on the East Side, blocks which were zoned as unrestricted districts when zoning was established in 1916, because of their proximity to the East River. The public garages in those blocks had a legal right to be there, but, if permits had been required from the Board of Appeals, that Board, in many instances, would have had some consideration for the throngs of children who live in these blocks and play in the streets, and would probably have told the applicants for garages to find blocks that were comparatively free from children.

I suggest that a zoning ordinance exclude public garages absolutely from residence districts and allow them in other districts only by permission of the board of appeals, subject to such conditions as are found in the New York City zoning regulations. As to distances from schools and hospitals, and as to the requirement of a certain percentage of consents in the case of business districts and in all districts requiring the fixing of the maximum size of the garage, and approximate conditions to safeguard the neighborhood, I suggest giving the board of appeals the veto power over the locating of a public garage in any section of a city, town or village where it is believed the introduction of such a garage would be unwise or detrimental.

In closing I will quote some of the conditions imposed by the New York Board of Standards and Appeals in granting permits for public garages in business districts.

Here is a resolution adopted on April 23, 1929, for a public garage in business district on Westchester Avenue in the Bronx:

"Resolved, that the Board of Standards and Appeals does hereby make a variation in the application of the use district regulations of the Building Zone Resolution, and that the application be and it is hereby granted on condition that the building shall not exceed in height two stories above grade; that the exterior of the building on the street fronts shall be finished with light-colored face brick with dark-colored brick trim or natural stone trimming or architectural terra cotta; that any ramp installed shall be set back from the building line on the grade of the sidewalk not less than 10 feet, that there shall be no signs exposed or displayed other than one electric projecting sign on Westchester Avenue frontage, indicating the name and title of the business conducted on the premises; that the rear gable walls shall be unpierced throughout their entire height and length; that there shall not be more than one vehicular opening on the Seabury Avenue front located approximately at the rear of the building; that a return of drawings shall be made to this Board of Appeals in accordance with the foregoing conditions before submission to the Bureau of Buildings for consideration; and that all permits required shall be obtained within six months and any work involved shall be completed within one year from the date of this action."

Where a public garage is authorized on an important business thoroughfare, further conditions may be added, as in the following case on Jerome Avenue in the Bronx, where an application for a public garage was

"granted on condition that the building shall be restricted in height to a one-story structure, with no cellar other than for the accommodation of, and below, the stores; that the entire Jerome Avenue front of the structure shall be developed and maintained for a depth of approximately 60 feet as retail mercantile stores, separated from the garage area at the rear by unpierced walls of approved masonry; that vehicular entrances for the accommodation of the garage use and operation shall be maintained on the Jerome Avenue front at each end of the structure, each vehicular entrance not to exceed a width of 10 feet; that the rear and gable walls of the entire height and length; that the garage area of the structures shall be ventilated with not less than six automatic louvred ventilators, glazed with plain glass, with wire guards above and below; that the structure shall be constructed fireproof throughout; that the garage area of the structure shall be equipped with a sprinkler system, supplied by direct connection to the city main; that there shall be no roof signs erected or maintained; and that not more than one 550-gallon tank for gasoline storage shall be permitted on the premises; the street front other than store fronts shall be finished with face brick, etc.; all permits necessary for the prosecution of the work shall be obtained within nine months and the building completed within eighteen months from the date of this action."

Traffic Flow During Congestion Not a Sound Basis for Planning Improvements

MUCH modern discussion of traffic capacity appears to assume that capacity is correctly measured during a period of heaviest traffic demand. In a recent editorial pointing out this fallacy, *Engineering News-Record* says:

"The assumption is based on incomplete reasoning, we believe. All experience shows that with increasing traffic a point is reached when the volume of flow begins to decrease, until finally congestion supervenes and movement takes place only with serious difficulty. This can and does happen in rapid-transit, in railway, in street and in road service alike. Yet these well-known experiences are often forgotten, and conclusions are drawn from crowded conditions which have no validity when the degree of crowding is kept under control. Only recently some estimates of road-traffic speeds and maximum capacities were put forward which had been derived wholly from study of crowded conditions—and which undoubtedly would have led to different conclusions if the study had been carried on under a slightly greater or slightly less degree of crowding. The only conclusions which can be of value are those derived from normal capacities and needs, since the choking effect of congestion is without limit and knows no rule. The planning of traffic improvements and new facilities, therefore, cannot soundly be based on observations on rates of flow during congestion."

New Industrial Water-Supply Brings Business

Aberdeen, Wash., Shows Foresight and Cashes In on Its Investment

FOR some ten years Aberdeen, Wash., has sought in various ways to attract pulp and paper mills and has tried to get that industry started in the Grays Harbor section. During those years there were many rumors that mills would be built, but, in spite of the facts that Grays Harbor County had almost everything to offer in the way of raw materials and sites, nothing happened.

In 1927 the city decided that some aggressive and progressive move was necessary. The Mayor and Council studied the field and decided that with raw materials present and sites available, the only thing lacking was industrial water in large enough quantities to fill the needs of the prospective mills. Thereupon, Aberdeen decided to offer cheap industrial water on the spot.

Water-Power Created

During the latter part of 1927 the city voted to purchase the water-power site on the lower Wynooche River and to go into the power business. Bonds to finance the project were voted and the site acquired. Shortly after that, the Zellerbach Paper Co. announced that it would build a $3,000,000 pulp mill, and before 1928 came to a close, the mill was completed and operating. Scarcely had this mill been completed when the Hammermill Bond Paper Co. announced that it would construct a huge mill on property adjacent to the pulp mill, and work on this project is already well advanced.

Industrial Water-Supply Started

With the power project under way, there followed a bond issue for an industrial water system, ground being broken in December, 1927, and the project completed within the last few months. This project is known as the Lower Wynooche River industrial water extension project, and it has been built entirely by the city of Aberdeen to furnish water to pulp and paper mills and other industries that need it.

Extent of Project

The Wynooche system—to give an idea of its size—will deliver to the city limits of Aberdeen enough water to take care of the entire domestic requirements of New York City, or about 80,000,000 gallons daily by gravity flow or 120,000,000 gallons under pressure.

Tunnel Through Divide

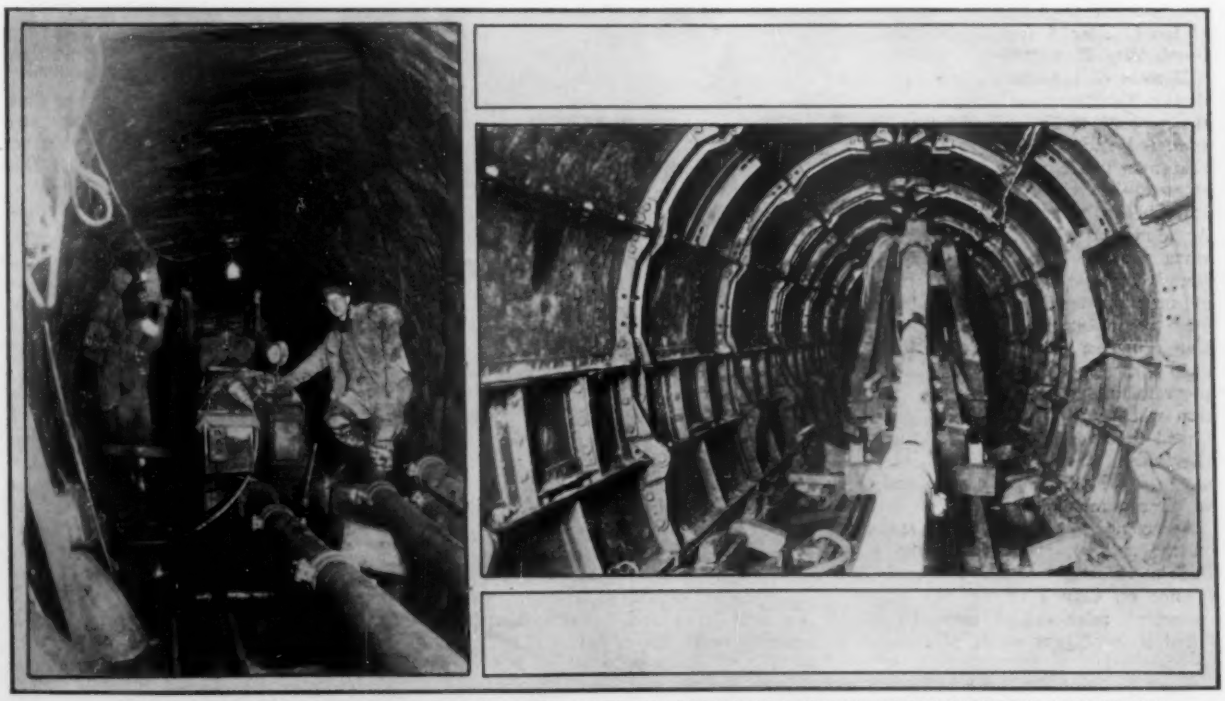
The largest single construction feature of the project is the 3-mile tunnel through the Wynooche-Chehalis Divide. The tunnel is of horseshoe section, 6½ feet inside diameter, and is lined throughout with concrete.

This tunnel was excavated from sand rock and lined with a 6-inch minimum thickness of concrete. The water passes through the tunnel in about an hour and after leaving the tunnel is conveyed by canal excavated in earth and sand rock about 1,000 feet to the storage basin. This basin was created by constructing an earth-filled dam having a top width of 10 feet.

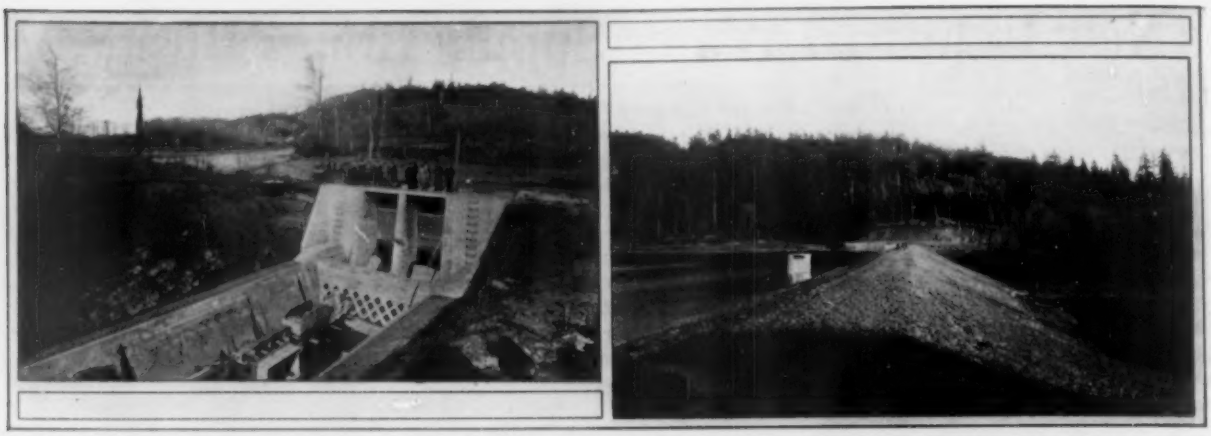
The next largest piece of construction in connection with this work, and possibly the most impressive, is the storage dam located at the Aberdeen side of the tunnel. This dam creates a lake of about 100 acres which is one of the largest artificial lakes in the northwest. The storage capacity is about 650 acre-feet, or more than 200,000,000 gallons of water. The tunnel will bring water diverted from the Wynooche River, while Van Winkle Creek, flowing direct, will feed water to the impounding dam during the rainy months.

Intake

At the opposite end of the tunnel an intake structure has been completed. At the point of diversion from the Wynooche River the quantity of water to be received by the tunnel is to be regulated by stop lock adjustment. From the intake at the river bank, the water flows at low velocity through a settling basin 110 feet long, designed to remove heavier solid matter which might cause silting in the tunnel. The water to be delivered will be drawn from the surface of the river, where suspended solid matter is at a minimum. Eddies and turbulence



THE INTERIOR OF THE WYNOOCHE-CHEHALIS TUNNEL BEFORE LINING AND DURING THE CONCRETING OPERATIONS



RIVER INTAKE FOR THE TUNNEL AND THE EARTH DAM FORMING THE STORAGE BASIN FOR THE INDUSTRIAL WATER SUPPLY

are subdued by passing the water through a baffle at the upper end of the settling basin. The period of retention in the settling basin is only about 3 minutes. From the basin the water flows directly to the tunnel.

From the storage basin the water flows through the Junction City aqueduct or pipe line, carrying the water from the dam to Junction City, a point on the outskirts of Aberdeen. The pipes for this aqueduct are of wood stave type, 54 inches in diameter and about 2 miles long. From Junction City the water will be delivered by the city to the sites of pulp mills or other industries as desired.

Advantages

This industrial water-supply, which is practically completed, has caused a new and active interest in Aberdeen on the part of pulp and paper manufacturers. Already several other large companies are preparing to take up sites, and at least one will have its new mill completed before the end of 1929. Pulp men have pointed out that it means much to a pulp plant to be able to construct a mill without also creating a water-supply source. There are many other industries which might be attracted to any city which has advantageous manufacturing sites if that city can furnish a satisfactory industrial water-supply in sufficiently large quantities.

The complete industrial water-supply installation is costing the city about $1,600,000, and it has been more than one year under construction, but when it is considered that the plant will be able to supply twelve or fifteen pulp and paper mills with ample water, the value of this investment is obvious.

Good Street Planning Involves These Important Relationships

INSTEAD of planning their streets in detail as isolated units, municipalities should recognize the need for system and organization in laying out these channels through which more efficient traffic circulation is desired, states Frederick Bigger, architect and town planner, and a member of the Citizens' Committee on the Pittsburgh City Plan.

If most of the street planning is being done without any certainty that some of the present traffic difficulties are to be corrected and without positive assurance that new traffic problems are not being created, then cities are operating blindly and ineffectively, Mr. Bigger believes. As a matter of fact, he maintains that when a single new unit is added to an already unorganized layout of streets, the old unsatisfactory condition is often made more complicated rather than simplified. Municipalities should recognize the difference between an accepted plan and a program of progressive street construction which will be economically proportioned to other capital expenditures, and they also should distinguish between measures which are preventive and those which are merely palliative.

According to Mr. Bigger's statement on the subject, presented at the recent Buffalo meeting of the National Conference on City Planning, the following important relationships must be established if intelligent street planning is to be practiced:

"(a) The most obvious relationship has to do with the suitability of the street channel itself to pedestrians and to the different types of vehicle which are to pass through any given uninterrupted stretch of a street. Here we think primarily of alignment and of the subdivision of the cross-section of the street.

"(b) One relationship is that between the uninterrupted stretch of street channel and the 'valves' through which traffic must be passed at street intersections. This concerns the effect which such interruptions have upon the general movement of traffic.

"(c) Another relationship is that between the channels of general movement and the more or less continuous 'harbor line' (the curb) where accretions and disintegrations of the main streams of traffic occur.

"(d) Still another relationship is that between the individual traffic route and other traffic routes—a relationship wherein we again become concerned with the valves of intersections which so largely determine whether we are to have 'pulsating traffic' or whether we can secure real 'traffic circulation.' Here we must know something of the possibilities of the enlarged intersection (perhaps the circle that it is legitimate to call a real traffic circle as against merely the round point) or of more highly organized arrangements with different levels and ramps to assure continuous traffic movement.

"(e) A relationship which I am convinced has not yet been fully analyzed is that between a major thoroughfare system and the minor streets within the areas bounded by the streets of that system. For example, I suggest that we have here a field for profitable experimentation. It is at least conceivable that more satisfactory movement upon the major thoroughfares could sometimes be secured by imposing specific traffic movements *throughout* the intermediate areas.

"(f) It is self-evident, of course, that we must always have in mind, as we generally do, the relationships which must be established between the streets and the use or character of the districts they serve, whether the latter be residential, commercial, or industrial.

"(g) Finally, I suggest that we cannot forever disregard the capacity relationship between those systems of major thoroughfares which we may devise and the private properties which they are intended to directly or indirectly serve. Here we have conflicting forces to weigh and to ultimately reconcile—the limited ability of the highway to increase in size and capacity, as against the but slightly limited ability of private properties to increase or decrease the traffic burdens they place upon the streets that serve them. As to this point, what we have been doing in the past seems to me analogous to the actions of the victim of the mental test who continues to pour water into a receptacle with the intent to fill it while an obvious hole allows the water to escape as rapidly as it is poured in."

FORWARD STEPS

Reported by

Municipal Officials, Chamber of Commerce Executives, and Others

San Francisco Firemen Using Floodlight Units

SAN FRANCISCO, CALIF.—Two powerful searchlight units, designed and assembled under the supervision of Samuel Bermingham, superintendent, and Harold H. Jones, general foreman, of the Fire Department's corporation yards, recently were added to the local Department's equipment.

These units are used to illuminate the exterior and interior of burning buildings and for rescue and salvage operations at fires. They are waterproof, permitting their operation in any kind of weather, and protecting them from the spray of the hose streams or bursting hose lines.

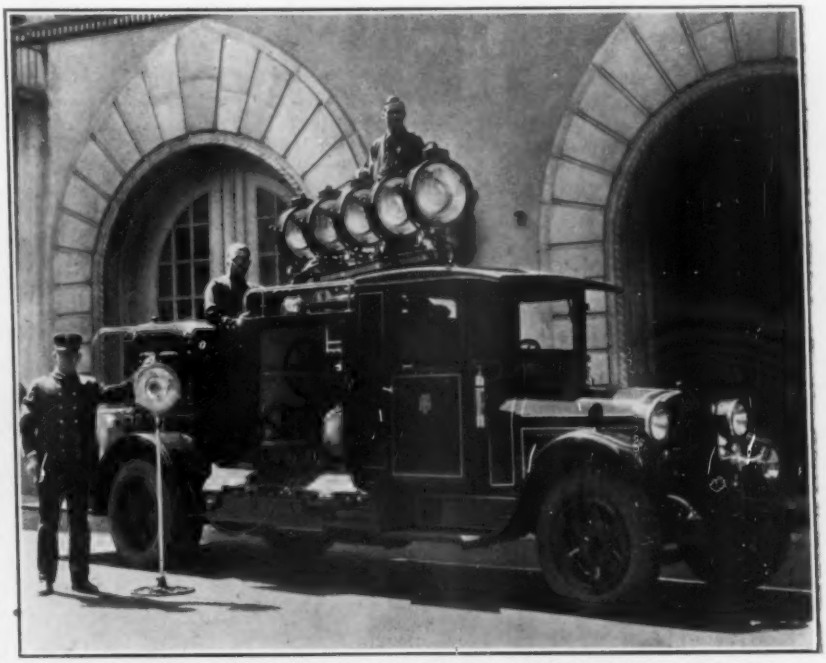
Each unit is mounted on a 2-ton Kleiber truck, especially designed for the purpose and having pneumatic tires. The electrical equipment is of the Kohler type with a capacity of 10 kw. A distributing switchboard, and a turntable which contains five swivel floodlights and is located on top of the truck, are important features. The portable lighting equipment consists of eight lights, eight adjustable standees, and a metallic cabinet for the storage of lights, extra globes, and supplementary lighting equipment. The portable lights are served through eight reels, each containing 500 feet of rubber-covered flexible wire, long enough to reach practically any interior portion of a burning building.

Each Kohler electrical unit used consists of a gasoline motor directly connected to a 120-volt D. C. generator, and its starting, stopping and voltage are regulated automatically. Each floodlight and portable light, the circuit of which is controlled from the switchboard, is properly fused so that should one short circuit occur, the remaining lights would continue to function. The eight wire reels are unique in their construction and application. Electric current is supplied to each reel through brushes and collector rings of ample service to prevent arc-ing. The terminals of each reel are of the marine type, and this waterproof quality prevents any operator from being shocked during damp weather. Reels may be rewound individually or collectively, by a crank handle which operates the respective clutches and locks.

The turntable supporting the five floodlights is mounted on rubber spring shackles to prevent the light globes from being badly jarred over rough roads. During a recent test, the trucks were driven for 50 miles over rough streets and car tracks without damaging any of the globe filaments. The trucks have a maximum speed of 35 miles an hour.

Each unit cost $8,200 and weighs 12,200 pounds. The candlepower of each floodlight is 141,000. The small portable lighting units are made of cast aluminum and consequently are very light and easy to handle. They are equipped with 400-watt floodlighting lamps and give a light beam of more than 80,000 candlepower. The large units are equipped with 1,000-watt lamps and give a very widespread beam of more than 15,000 candlepower. They are so powerful and offer such a diffused light that they can illuminate brilliantly an entire block.

THOMAS R. MURPHY,
Fire Chief.



ONE OF THE NEW SEARCHLIGHT UNITS PLACED IN SERVICE RECENTLY BY THE SAN FRANCISCO FIRE DEPARTMENT

A Body of Woman Advisors Gives Valuable Aid to the Mayor

SAVANNAH, GA.—The Woman's Advisory Board to the Mayor of Savannah has been in existence for five years. It consists of twelve Advisors, a chairman and a secretary, the latter not being a board member, but an employee in the office of the Clerk of City Council. The Board was first created by the late Mayor Robert M. Hull, was continued by his successor, Thomas M. Hoynes, and is proving a valuable asset to the present Mayor, Gordon Saussy.

The Advisors are appointed by the Mayor, and all reports of the Board are made to him exclusively. The personnel is composed of women representative of various elements of the city's life, most of them being leaders in the social and club life of the city, or noted for some outstanding personal accomplishment.

The Board has neither legislative nor executive powers and acts purely in an advisory capacity. It does not participate in City Council sessions, except as a member may appear before Council to go into detail concerning some particular question which has been studied or condition investigated. However, the Board has regular stated meetings, holding sessions every two weeks at the City Hall.

Although the original idea in creating the Advisory Board was primarily to inaugurate a campaign among the housewives of Savannah in the matter of buying at home and of purchasing Savannah-manufactured goods, its scope has been gradually broadened until it now interests itself in practically every matter touching the woman-life of Savannah. There are committees on the city market, cleanliness of streets, beautification of parks and squares, moral conditions, etc. Full reports of committee activities are prepared and submitted to the Mayor, who studies them carefully, and then makes his own recommendations to City Council.

Mayor Saussy, in discussing the Woman's Advisory Board, said that although generally and with very few exceptions he does not believe in administrative commissions and boards working

under boards of aldermen, he has found the Advisory Board a very valuable asset in his work. He said:

"The Woman's Advisory Board members are all residents and citizens of Savannah, and they serve without compensation. These women meet regularly and bring to bear on the solution of many of our problems thorough and intelligent effort. I find their work very helpful, and frequently their reports have shown an experience and thoughtfulness which the Mayor and Aldermen have, in many instances, unhesitatingly followed."

ROY SWINDELLE.

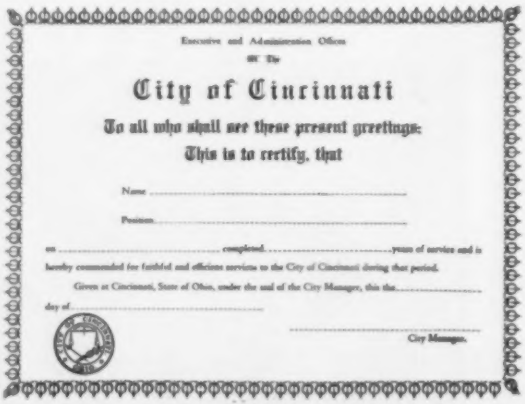
Cincinnati Awards Service Certificates to Employees

CINCINNATI, OHIO.—In recognition of past service and as an added incentive to future faithful work in behalf of Cincinnati, the city administration recently awarded service certificates to 122 municipal employees who have rendered 25 years or more of continuous meritorious service.

Each city employee receiving one of these certificates was congratulated upon his or her record of service and reminded that the regard in which the municipal government of Cincinnati is held by its citizenry depends largely upon the honesty and efficiency of the city employees. Practically 30 per cent of the city's workers have been in the service of Cincinnati for from ten to fifteen years.

As evidence of the relatively small turnover among these employees in Cincinnati, the city administration offers the following analysis; serving from 10 to 15 years, 1,315 employees; from 15 to 20 years, 624; from 20 to 25 years, 311; from 25 to 30 years, 104; from 30 years upward, 51.

C. O. SHERRILL,
City Manager.



Executive and Administration Offices

City of Cincinnati

To all who shall see these present greetings:

This is to certify, that

Name .....

Position .....

on ..... completed ..... years of service and is hereby commended for faithful and efficient services to the City of Cincinnati during that period.

Given at Cincinnati, State of Ohio, under the seal of the City Manager, this the ..... day of .....

City Manager.

FACSIMILE OF THE SERVICE CERTIFICATE GIVEN CINCINNATI CITY WORKERS

A Strikingly Distinctive Civic Center in a Small Town

VERONA, N. J.—Verona is situated between the first and second of the Orange Mountains. The population of the town is about 7,000.

Back in 1922 the building used as the Town Hall was burned and temporary quarters were provided for, and the people of Verona were asked to attend meetings to consider putting into operation a plan of a group of buildings for municipal affairs. After a few meetings, the people authorized the Borough Council to procure enough land on which to locate the building at some future time. This was done, and we now have what we consider one of the most representative civic centers in the country.

It is in the center of town on the main thoroughfare. As one looks towards the Civic Center he sees a large lawn, with an incoming and outgoing drive, in the center of which stands our Soldiers' Memorial. On the left, facing the square, is the Municipal Building, which houses the Fire and Police Departments together with the municipal offices. About 100 feet north of this is the Public Library, also facing the center of the green. Then parallel with the main thoroughfare and fronting towards the center is the High School. On the right of the green is one of our grammar schools. In the rear of the High School there is a large athletic field capable of accommodating all the athletic events of the school and suitable for any public display which the town may hold at any time. The grounds are laid out with beautiful lawns and shrubbery, and, all in all, the Civic Center makes a very pretty picture.

The main reason for success in this, I believe, is that we have built substantially and permanently. The buildings represent an outlay of about $600,000 and the land about $100,000.

This work, of course, could not have been done without the sympathy and cooperation of the citizens, and Verona has been fortunate in that when any such move has come up and the citizens have been called to public meetings, we have found them always responsive and willing to support any comprehensive matter that would give our town prestige and prominence. It is our opinion that a town is sure to go ahead if the will of the taxpayer is ascertained and then carried out.

DAVID H. SLAYBACK,
Mayor.

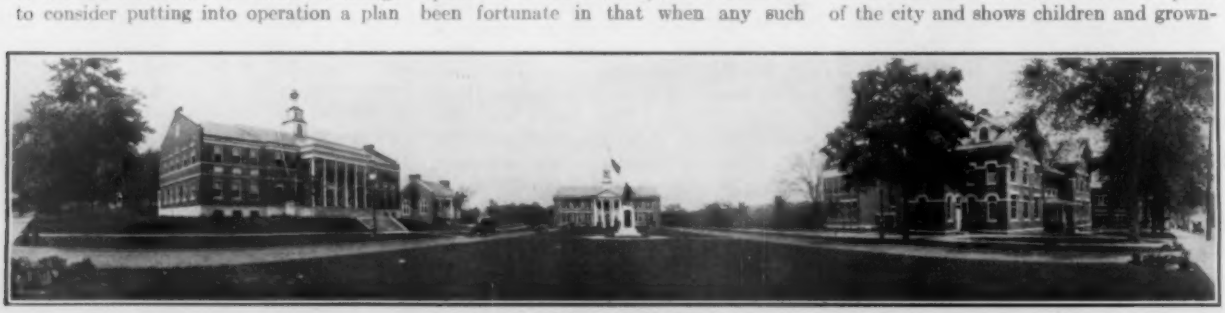
Houston Presents "Happiness" for Everybody — a Suggestion Which Other Cities May Follow

HOUSTON, TEXAS.—A moving picture with no glittering or alluring stars, no high-powered direction and very little press-agenting drew an audience of some 6,000 persons in Houston, recently. The occasion was the annual meeting of the Houston Recreation Department. The picture was a movie story of playground and adult recreation in this city. The actors were boys and girls, young people and grown-ups who participated in the Department's supervised recreation program during the year. The director was a recreation superintendent with her staff, assisted by a local photographer. The press agents were reporters on Houston's three dailies, who gave the picture publicity in their news columns.

The picture story came about in this way: News reels taken on Houston's 28 municipal playgrounds and shown at moving-picture houses as local news were collected and used as a nucleus for the movie. Additional scenes and activities were shot by the photographer to fill in missing parts. The whole was woven together into a two-reel film replete with action and showing in a splendid way our play opportunities for young and old. "Happiness" was chosen for the title of the completed picture.

The story opens with a prologue, followed by scenes depicting Houston's vast industries and its towering skyline. Next follow two scenes in sharp contrast to each other. One shows boys shooting craps in an alley, and the other a group of boys going eagerly down a wooded path.

The body of the film is composed of scenes shot on playgrounds, in recreation centers and on ball diamonds in all parts of the city and shows children and grown-



CIVIC CENTER, VERONA, N. J.

At the left is the Municipal Building, and next to it the Public Library. The High School is in the center background, facing the green, and a grammar school is at the right. The Soldiers' Memorial can be seen in the center foreground

ups engaged in games, handcraft projects and musical and dramatic activities. Industrial girls, telephone operators and department store clerks limber up on basketball courts and playground ball diamonds after their day's work. Young men from industrial and professional life stand toe to toe in competitive games, all dignity and care lost in the zest of play. Fathers flock to kite tournaments with their boys, and little children are at play in sandboxes and under street showers while their mothers cool off in a neighborhood swimming pool.

The picture ends with an epilogue in which the citizenship is asked to cooperate in the city's recreation program by providing money and leadership to put its facilities and activities within reach of every man, woman and child within its gates.

Not only did the picture go over big at the annual meeting, but it went the rounds of the playgrounds in Houston, and calls were received for it almost immediately from surrounding towns. Already the film has traveled many hundreds of miles to preach the gospel of recreation, and calls for it are being received with increasing frequency.

The film is available for use to any one wanting it. We are asking a rental of $5 to cover repairs and breakage and the payment of express charges both ways. It consists of two reels and requires twenty minutes for showing.

CORINNE FONDE,
Superintendent, Department of Recreation.

East Side Chamber Wins Fight for Clean Streets

NEW YORK CITY.—Last fall the East Side Chamber of Commerce undertook a single-handed but vigorous campaign to reduce to a minimum the litter which daily filled many of the business streets of the lower East Side.

For a number of years, various outside organizations attempted this reform without first seeking local cooperation. School squads had been organized and extensive speaking programs carried on, but after a considerable period of these tactics, the condition of the streets failed to show much improvement.

An investigation by the Chamber of Commerce disclosed that the cans usually supplied for waste paper by the Department of Street Cleaning were missing in this particular district. An application for 100 of these trash cans was placed immediately with Street Cleaning Commissioner Taylor, who expressed surprise that the lower East Side lacked the receptacles utilized in all the other sections of the city.

The initial installment of these cans was delivered after reminding the Department of the existing situation almost weekly for nearly three months. The new cans may be found on several of the streets between the Bowery and the East River. Now the Chamber intends to submit a request for another 100 cans for the remaining territory in the district and it is believed that these will be forthcoming more promptly.

JOSEPH H. MAYERS,
Chairman, Sanitary Committee.

INTERNATIONAL HARVESTER COMPANY MOTOR TRUCK USED BY THE SHADE TREE DIVISION OF THE CITY OF NEWARK, N. J.

Shade Tree Division Uses Special Truck in Newark

NEWARK, N. J.—A truck especially equipped for use by the Department of Parks and Public Property, and more particularly for the Shade Tree Division, is proving invaluable in this city.

The conveyance is used for the removal of brush and branches resulting from tree trimming and is suitable for loading and hauling large trunks and stumps to the dump. It is also adaptable to clean-up work, often so necessary after a storm. Both the body and the winches were built especially for the Department, which has supervision over the parks and street trees.

It carries a tool-box containing saws, axes, ropes, shovels, blocks and rollers. The dual tires on the rear wheels increase its effectiveness in soft ground.

CARL BANNWART,
Superintendent, Shade Tree Division.

A Laboratory Experiment in Citizenship on the Playground and in the Gymnasium

DETROIT, MICH.—At the beginning of the 1928 basketball season a new policy was inaugurated in the Metropolitan Detroit high schools. For want of a better name it was called "The new plan for non-adult interference at league contests." The plan as first announced was unanimously adopted by the principals of Detroit's 16 high schools and favorably voted for by 87 per cent of the high school athletic directors.

It is essentially educational in its conception, and is capable of wide application. It gives the boys complete charge of the teams throughout the game. Several regulations are in force to ensure the actual operation of this part of the plan:

1. Coaches shall not communicate with players.
2. Coaches shall not sit together during games.
3. Team captains shall make substitutions.
4. Different captains shall be appointed or elected at intervals throughout the season.
5. The boys themselves shall analyze the game between halves.

Such a radical step naturally caused a great deal of criticism, both favorable and adverse, and this was naturally reflected in the newspapers. Papers, long accustomed to lauding coaches or disparaging them, were generally among the opposition, realizing that they had lost a part of their stock in trade. "Mentor" Brown and "Guiding Spirit" Smith being no longer glorified chess players, moving 22 boys about on the gridiron chessboard, or 10 boys on the basketball chessboard, the newspaper sports writers had to adjust their thinking accordingly. College and university coaches appealed to by the opposing faction, were practically unanimous in their assertions that the plan was not feasible. They felt that their domain had been precipitately and aggressively entered.

Realizing the futility of pro and con arguments, and desiring only to obtain tangible proof of the success or failure of the plan, we decided to send comprehensive questionnaires to each high school to be filled out by players, coaches, athletic directors, and principals. Another set was sent to officials. Twenty-five questions were asked, fifteen of boys, and ten of adults; 277 questionnaires were filled and returned, all without signatures.

The entire plan of the questionnaire was based on three fundamental factors, namely, the development of leadership; the development of initiative; the development of self-reliance. Outstanding in the argument for the continuance of the policy is the fact that more than 230 boys who actually played basketball in the Detroit league this year gave answers which show an average of 72 per cent in the affirmative for the three questions. Totaling and averaging both the players' and the adults' answers on these fundamental questions shows 63 per cent claiming more initiative, leadership, and self-reliance. Space will not here permit complete discussion of results, but analysis of the complete returns proves conclusively to me that we have made a 63 per cent gain in teaching that which all of us contend we do teach, namely, citizenship. And 75 per cent of 40 principals, athletic directors, coaches, and officials voted to continue the plan either *in toto* or with modifications, and 76 per cent of the players voted the same way. Furthermore, 40 men vitally concerned with the welfare of boys and vitally interested in the playground and gymnasium as a laboratory for teaching citizenship, voted 70 per cent that the plan is educationally sound.

VAUGHN S. BLANCHARD,
Supervisor of Health Education, Detroit.

Industrial Development Surveys and Propaganda—Facts, Fallacies or Fiction?

THE nation-wide campaigns conducted by chambers of commerce to obtain new industries for their respective communities are too often based upon unsound and misdirected efforts which presage failure from the outset, in the opinion of A. S. Keller, Manager of the Council Organization Division of the Pittsburgh Chamber of Commerce.

In an analysis of the entire question published under the title of "Facts and Fallacies of Chamber of Commerce Industrial Activities," Mr. Keller finds that, in general, chambers are approaching a delicate and complicated problem in a rather crude and unscientific manner. While some successes have been achieved through these customary methods, he is convinced that fallacies rather than facts about local industrial development dominate the average chamber campaign.

A Scientific Industrial Survey Needed

While the usual industrial survey prepared by a chamber of commerce industrial manager is considered by him to be of great value, Mr. Keller intimates that the majority of such reports neither interest nor convince the manufacturer. On this point he says:

"Any industrial survey should be made with a definite object in view—not to be a book of knowledge to be used by sixth grade pupils and captains of industry as well. *Pertinent* facts should comprise the survey—not *oceans of facts*. A practical survey, utilized intelligently, can be of invaluable assistance to a chamber of commerce in exploiting industrial expansion in a legitimate field. This assembled data showing the condition and needs of the industries already located, the proven advantages and possibilities of the community for the location of the class of industry already successful, and for others which should ultimately succeed under the conditions evident in the survey, is undoubtedly beneficial."

One of the most common criticisms of industrial managers he states, is that they are ofttimes loose with their survey facts and guilty of befogging the unfavorable points of their communities. As a result, fact-seeking executives weary of the statements and claims advanced by these chamber officials.

Even when a satisfactory survey has been compiled, Mr. Keller finds, copies usually are scattered promiscuously, with little regard to the condition of the plants being sought for a certain town; to the advantage of their present location over the proposed one; or to the possibility of their desiring, or even being able, to move.

The Weakness of "Baiting" Industries

In general, Mr. Keller sees little effectiveness in a "new-industries-by-mail" campaign or in the popular policy of "baiting" industries by promises of such special inducements as tax rebates, free sites, payment of the moving cost, etc.

"The reasons for influencing any worthwhile manufacturer to locate should be based on economies with respect to a balance of the factors which make for the success of that particular business enterprise. For a plant of any consequence these 'free' items are a very small percentage of operating overhead. The fact that a business man would allow such trivial considerations to influence his choice of location, is a direct reflection upon the integrity and ability of that executive, except in remote cases."

The industrial manager of a chamber of commerce, Mr. Keller maintains further, should in no sense act as a stock promoter. An established firm engaged in such work might well be affiliated with the chamber, he thinks, but not an integral part of it. He would let successful business executives accept the responsibility for any failures which might result from this work. It is no more the function of a chamber of commerce to advise people to invest in new industries than it is to urge them to invest in plants already established, he feels.

Ways to Assist Established and New Industries

Assisting the established industries of any community is in itself a task of prime importance, but one which is often neglected by chambers in the rush to gain new factories, the analysis points out. In reply to a query as to the five most tangible ways in which assistance may be rendered established industries, Mr. Keller reports that 39 industrial managers listed the following in the order named:

1. Extending marketing outlets and supplying marketing information.
2. Lending financial assistance to established industries for expansion.
3. Lending aid in various problems of management and bringing new developments in various fields of industrial activities to their attention.
4. Assisting in traffic problems.
5. Protecting such industries against unwise and ill-conceived regulatory legislation, and urging the passage of that which is beneficial.

In giving valuable assistance to new industries being sought by a community, the following factors were rated as most important by the industrial managers:

1. Furnishing a survey or statistical facts concerning labor, taxes, power rates, cost of raw materials, freight rates, markets, new building costs, and general community facts.
2. Locating, and having available, data on suitable plant sites most adaptable for the purpose.
3. Establishing proper contacts with local business men.
4. Studying situation as to whether community is suitable for the prospective industry, giving both facts and faults of the community.
5. Assisting in financing.

Other items rated of importance were "assisting in industrial housing problems" and "conducting the civic affairs of the community so as to make it a profitable place for industries to locate." Mr. Keller emphasizes these two points and insists that the working, living and recreational conditions in the progressive community must be of the best, so that labor will be satisfied.

Not All Communities Suited to Industry

Summing up the problem in terms of obstacles and opportunities, Mr. Keller says:

"That all communities cannot become industrial centers is a certainty, regardless of the increasing belief of the populace that they should. Perhaps much of this civic energy is being expended in the wrong direction. Suppose that the energy of many farming communities and centers, now seeking industries, was utilized in an endeavor to solve the farm problem, rather than chasing industrial rainbows, it is quite likely that more economy would be the outcome. Then, should a new industrial development be needed to further that ultimate as affecting their production, let it be undertaken. Forgetting the production of steel, of furniture, of leather goods, of silk and cotton fabrics may even benefit them by permitting those industries to remain where they have proven successful and not where people want them."

Another Recent Document

of importance on the subject discussed on this page is "The Industrial Development Survey," by James L. Madden, Third Vice-President, Metropolitan Life Insurance Co., obtainable in mimeographed form from that company, at Madison Avenue, New York.

Spend Your Road Money Logically

By W. E. ROSENGARTEN

WINTER weather, and heavy rains at any time of the year, always emphasize the plight of the rural dweller whose only access to main paved highways is over untreated, unsurfaced earth road feeders. Alternate freezing and thawing make these dirt roads in the northern states almost impassable, and spring rains have a similar effect on roadways of the South. There is a rising tide of public demand that we supplement our great paved road system with a secondary or rural service road improvement program of such magnitude as to afford quick and substantial relief from the mud burden. The building of high-class roads on our heavy-traveled main routes should not be opposed. Full consideration, however, should be given to the rural service type of road and its rightful place in our highway development program throughout the nation.

Not only is that large section of our rural population whose farms do not front on the modern highway vitally concerned with the development of adequate rural improvement, but a casual glance at the badly congested main highways in the vicinity of the cities and good-sized towns should convince the most casual observer that the secondary or country roads must be opened up to relieve this congestion of traffic and help reduce the awful loss of human life that is caused by automobile accidents. If many of the Sunday drivers could be enticed to travel on the more inviting secondary roads, much of the congestion would be relieved.

It is evident that we still have almost a generation of time ahead of us in paving the primary highways with high-class pavement types and it is preposterous to attempt to pave the secondary roads at the same time to the same standard. These roads must be improved quickly, effectively and cheaply and at a comparatively low cost. This does not mean that no attention is being paid to the subject and that our highway authorities are not improving any of the secondary roads. As a matter of fact, they are building a surprisingly large mileage, but, in the aggregate, this work is tremendously short of the necessary volume, and, moreover, no ratio has been set up by which to determine how much should be spent for primary roads and how much for secondary roads. This is all vitally important, and these problems must be solved if we are to achieve the full measure of benefit in highway transport.

Grouping of Roads

As a suggestion for the allotment of available money to various classes of roads, the principle may be laid down that *each vehicle is entitled to have spent upon the road it travels the pro-rata share of the highway funds that it supplies by gasoline or other taxes.* This principle will call for expenditures to be allotted on the highways according to the traffic. For practical application, a county or state highway system might be divided into groups according to the traffic density. As a suggestion, Group 1 might include all roads having an average daily traffic, not a maximum traffic, of more than 1,200 vehicles per day. In Group 2 could be placed all roads having an average traffic of from 800 to 1,200 vehicles per day. Group 3 could include roads having an average traffic of 300 to 800 vehicles, and Group 4 could include all roads having a traffic of less than 300 vehicles per day.

Distribute Expenditures According to Traffic Demand

The author develops a strong case for the spending of highway funds in proportion to the demands made upon the road by the highway traffic. The highway system of any county is divided into traffic-density classes, and an expenditure per mile is set up as standard for each group. The funds are then expended in the proportion of the use made of the roads, after a traffic survey adjusted in accordance with the natural increase in traffic that is bound to be attracted by the improved road.

This grouping naturally calls for a traffic survey of the territory, but it is believed that in order to build a highway system adequately and economically, a traffic survey is essential, so that the flow of traffic may be known and properly provided for. A comprehensive traffic survey would naturally classify the roads on a basis of their potential traffic rather than on the actual traffic count prior to improvement. If the mileage in each group is obtained from a traffic survey and each is multiplied by the average potential traffic for that group, this will give the total vehicle-miles of traffic on the highways of the territory for each group. The proportion of the total traffic on each group will give a basis for allotting the highway funds.

An Example of Allotment

As an example, let us consider a county with 1,000 miles of highways which has $500,000 annually to spend on their construction. A traffic survey might class the highway system as shown in the table below.

This gives a rational subdivision of funds available, and each year particular roads from each group must be selected for improvement. The improvement required for Group 1 will undoubtedly be one of the higher types of asphalt, brick or concrete, costing in the neighborhood of $35,000 per mile. This will allow about two miles of road of this class to be improved annually, or the complete improvement of this portion of the system in twelve years. Group 2 can best be served by a lower cost type of paving such as a medium design of asphalt macadam, which may cost $20,000 per mile and allow a little over two miles per year to be paved, or twelve years to complete this group. Records show that a medium design of penetration macadam will give excellent service under traffic of this class. In fact, this type when built to adequate thickness and base will carry the heaviest traffic. In Massachusetts eleven of the fifteen heaviest traveled roads are paved with asphalt macadam, and the traffic counts show that these roads carry from 5,000 to 10,000 vehicles per day.

When we come to Group 3, average 500 vehicles per day, gravel or macadam with a surface treatment, or mixed-in-place coating, or sand clay with a thin asphalt aggregate top, should be satis-

TYPICAL ALLOTMENT OF FUNDS FOR IMPROVING A SYSTEM OF HIGHWAYS

Group	Traffic in Vehicles per Day — Limits	Average	Miles in Each Group as Determined by Survey Miles	Vehicle-Miles	Per Cent	Subdivision of Funds
1	over 1,200	1,500	25	37,500	14	$68,000
2	800 to 1,200	1,000	25	25,000	9	45,000
3	300 to 800	500	200	100,000	36	182,000
4	under 300	150	750	112,500	41	205,000
Total			1,000	275,000	100	$500,000

factory. A recent survey of the low-cost types of roads by the Highway Research Board of the National Research Council indicates that these pavements carry from 300 to 1,500 vehicles per day. Their cost would average about $10,000 per mile, which would allow 18 miles per year to be paved on the typical system mentioned above. This would require some eleven years for completing Group 3 roads. There are places where conditions permit a decided lowering of this average cost. For example, Florida has more than 250 miles of sand-clay base with asphalt and slag chips, which costs for base about $2,500 per mile and for top treatment $2,200, or a total of $4,700. These provide surfaces in appearance and riding qualities equal to the highest types of pavements, and are satisfactorily taking traffic of 1,000 vehicles per day.

The remaining roads, in Group 4, which carry but few vehicles, can be put in shape by draining, grading and oiling, or they might possibly be given a surfacing of top soil, sand-clay, or local materials, which can be oiled to lay the dust and assist in resisting absorption of water from the surface. The cost of improvement might average $4,000 per mile. A total of 50 miles a year could be so treated with the available funds, which would allow the entire group to be treated in fifteen years. Such a plan must not be interpreted as precluding that flexibility which is necessary to adapt it to the needs of a given development for any one year. If, in the highest group, the apportionment allows only 2 miles and a 5-mile project is essential, a variation can be made for that year to permit the completion of this project. It could be compensated for by reducing the expenditure on this group in succeeding years.

It must not be considered that the improvement of the secondary roads is temporary and soon to be totally lost. Grading and drainage structures should be laid out and built as a lasting improvement. The base and surfacing should be laid carefully to grade, with the idea that eventually they will serve as foundations for more improved surfaces as traffic demands and the particular road moves up to a higher group. It is earnestly recommended that a survey be made of our highway systems, so that we can give due consideration to all classes of highways and thereby not over-develop one at the expense of the other.

ACKNOWLEDGMENT.—An abstract of a portion of a paper presented at the Florida Road Builders Convention, Jacksonville, Fla.

Chicago Makes Rapid Progress in Campaign for Alteration of Unsafe and Unsanitary Buildings

MORE than 200 buildings that were found to be either unsafe or unsanitary, or both, have been razed in Chicago during the past two months as a result of a campaign inaugurated by Building Commissioner Christian P. Paschen to rid that city of dilapidated old structures.

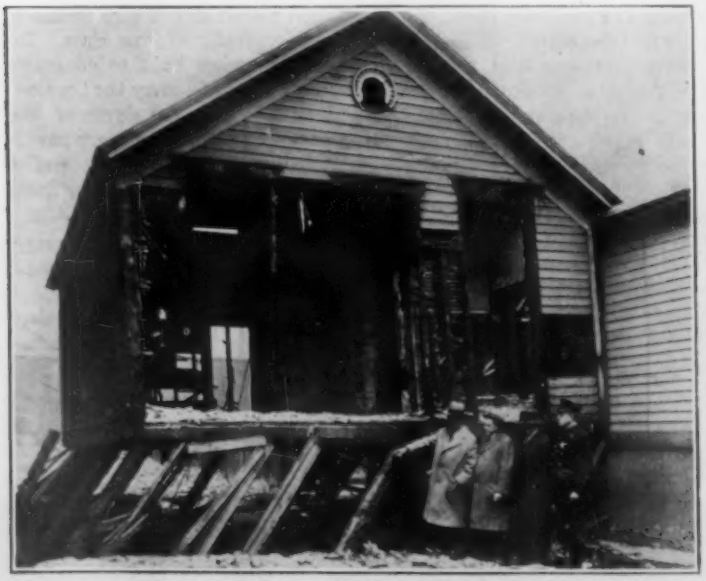
At the end of May, approximately 600 owners had been advised by the Building Department to alter, remove or demolish condemned structures. In addition to the number of buildings actually razed, Commissioner Paschen reports, hundreds of owners voluntarily rehabilitated and repaired their buildings in anticipation of receiving notice to do so from the building officials. Mr. Paschen believes that before the campaign is over, practically all the old and uninhabitated buildings in Chicago that are not fit to remain standing will have been demolished.

Improvement associations and chambers of commerce in the districts involved have supported the campaign wholeheartedly, and much of the impetus with which it started was supplied by welfare bodies whose committees found many of the buildings to be breeding-places of crime and tuberculosis.

Commissioner Paschen was told that welfare workers have been striving for fifteen years to bring about the destruction of many of the filthy tenements that have now been destroyed. In some of these structures, families were living two to a room and children spent most of their time in basements where the sunlight never penetrated.

The voluntary cooperation of the owners is sought first by the Building Department and a request made that the undesirable conditions be eliminated or the structures rebuilt. Where the owners refused to cooperate or were unwilling to improve conditions, however, the Department waited only until the expiration of the required ten-day warning period, and then proceeded to raze the buildings.

When the movement started in April, inspectors from the Building Commissioner's office were sent out to scour the city for unsafe, unsanitary, and decrepit old structures. Before the work is completed, probably 3,000 buildings under these classifications will have been renovated or razed, the inspectors estimate. Attacking the slum districts first, the building officials expect to have such sections practically eliminated before the World's Fair opens there in 1933.



SUCH HOUSES AS THIS ARE FALLING INTO THE WRECKERS' HANDS IN CHICAGO

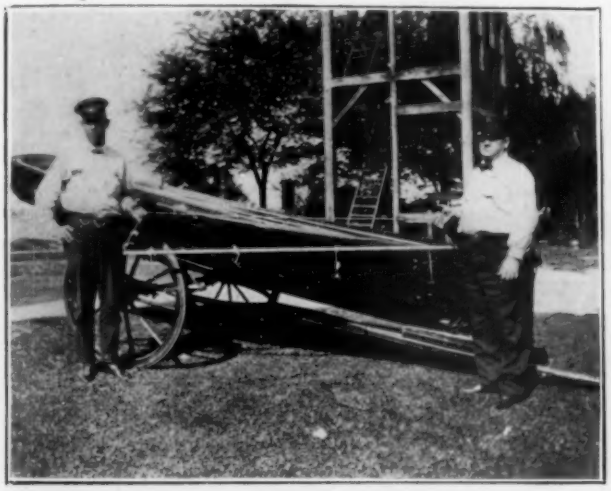
HOW BUILDING DEPARTMENT OFFICIALS TAG THE DOOMED HOUSES

Pictures and Paragraphs from Near and Far

Firemen Serve as Life Guards in Dayton, Ohio

WHILE the average fire department has as its primary and only duty the extinguishing of fires and the saving of life and property involved, there are instances where the firemen are expected to perform other tasks of an entirely different nature.

Dayton happens to afford one of these exceptions to the rule, for there, certain members of the Fire Department perform the functions of life savers along the Miami River. Folks living in Dayton use this river for varied ends. They swim in it, fish in it, boat on it, and often use its shores for strolls or games. Sometimes an accident occurs, due to persons going out beyond their depth while swimming, or tipping over in a boat or canoe.



To meet such emergencies, the fire stations near the river are equipped with life boats, manipulated on land on a two-wheel carriage. The firemen are drilled in the operation of these boats and in the principles of such first-aid treatment as drowning persons require. Dayton is an enterprising city and the city management, while impressing the firemen with the fact that their first duty is to fight fires, believes that the men can be of additional service to the public in this unique fashion, when not battling flames.

The boats and carriages are all maintained in first-class condition and equipped with the necessary first-aid material. Upon a call for help, the boat crew springs to its oars and are off to save the endangered lives, just as in the case of a bad fire.

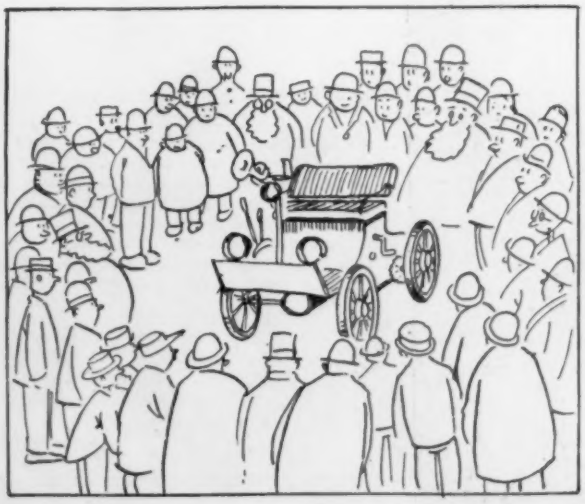
It is believed that the Dayton Fire Department enjoys the unique distinction of being the only one in the country to possess such equipment and to undertake to render such a service. So far as is known, the efficiency of the firemen in the performance of their regular work has not been impeded in the least by this extra responsibility. Considering that the Fire Department's prime function is to protect life and property, it is not such a great jump from fire fighting to saving persons from drowning.

FELIX J. KOCH.

Flowers Bloom on Lamp Posts

THE city fathers in Stettin, Germany, have decreed that the monotonously uniform electric light posts sholl be made beautiful as well as useful. With this end in view, ornamental baskets have been built encircling the posts, as shown here, and containing blooming flowers.

1903—THEN AND NOW—1929



By Engholm in "Blackspotten," Copenhagen

ONE ARTIST'S CONCEPTION OF THE UNPLANNED TOWN

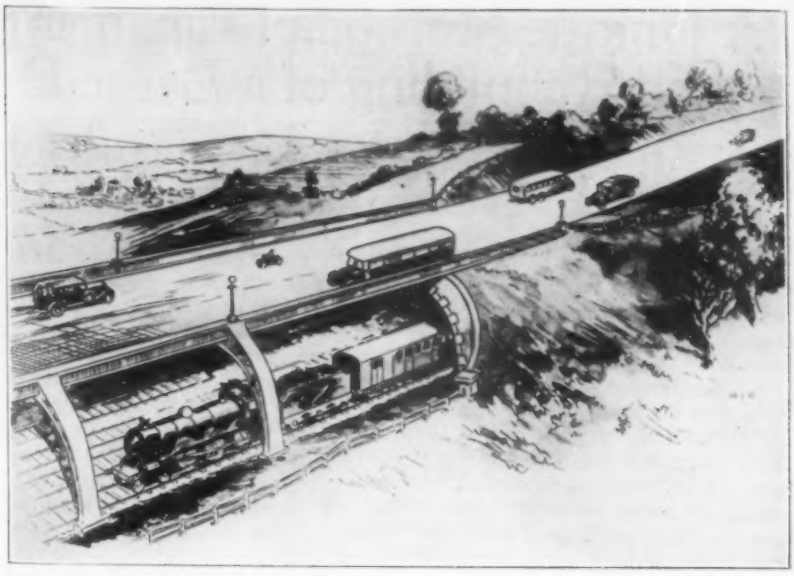
A story without words, which should hold an intimate appeal for many newly formed city planning and zoning commissions. It was drawn in a merry mood by the eminent caricaturist, Heath Robinson, and first appeared in "The Bystander," an English publication. Subsequently, the cartoon was reprinted in The Journal of the Town Planning Institute of Canada, through whose courtesy it is reproduced

NEW FIRE-ALARM CENTRAL OFFICE IN TUCSON

This Arizona city recently transferred its central-office equipment into this attractive, isolated and fire-resistive building. Apparatus installed here includes an 8-circuit automatic switchboard, an 8-circuit automatic repeater, an Excelsior punch register and Excelsior time stamp, 200-cell P.P.I. battery, two 60-inch, 4-shelf metal battery racks, and two motor-generator sets

SAN ANTONIO BEAUTIFIES THE BANKS OF ITS RIVER

An example of what artificial banks mean to the beautification of streams and rivers. This picture was taken in San Antonio, one of the few cities in the United States that have given special attention to this important phase of municipal improvement. The bridge, which adds to the appeal of the scene, is typical of many in that community



HIGHWAYS AND RAILWAYS ON SAME RIGHT-OF-WAY SUGGESTED FOR LONDON

As an aid in solving the traffic problem in London, England, a measure was proposed recently whereby concrete roads would be built above the existing railways. These roads would connect with the nearest arterial highways. It is contended that this project would aid in the alleviation of the unemployment problem. The accompanying drawing indicates how the plan would operate

HOW'S THAT, MISS SALLY?
OH, IT'S WONDERFUL - IT'S GORGEOUS
WAL, HIT AINT SECH A BAD SUNSET FER A LIL TOWN LIKE CACTUS CENTER
ART HUHTA

CIVIC PRIDE AS EXEMPLIFIED BY MESCAL IKE

Ike, the character created by Art Huhta and made familiar to newspaper readers by the Chicago Daily News Syndicate, is shown here in the role of the 100 per cent town booster for the community of Cactus Center

PARIS REGULATING BOULEVARD TRAFFIC IN ITS OWN WAY

The steady increase in vehicular traffic on the boulevards of Paris has necessitated the use of an elaborate system of signals. Some idea of how they work may be gained from the picture showing the officer in his tower at the side of the thoroughfare, directing the flow of traffic

A Unique Method of Financing the Regrading and Rebuilding of a Large Downtown Area

By MILES CATLIN SMITH

IF a project now under way in Los Angeles is carried to a successful conclusion, as seems likely, an area in the central business district of the city of approximately 1¾ x ½-mile, which now rises to a height of about 100 feet above the street levels surrounding it, will be regraded and repaved without cost to the municipality.

Many years ago, Bunker Hill, as this section was called, was a desirable residence district. With the spread of the business district all around it, it lost its value for high-grade residences, but owing to its elevation it could not well be utilized as a location for business enterprises. In consequence, both the land and the buildings upon it have long been considered by the owners as more or less of a "frozen asset."

How the "Bigelow Plan" Developed

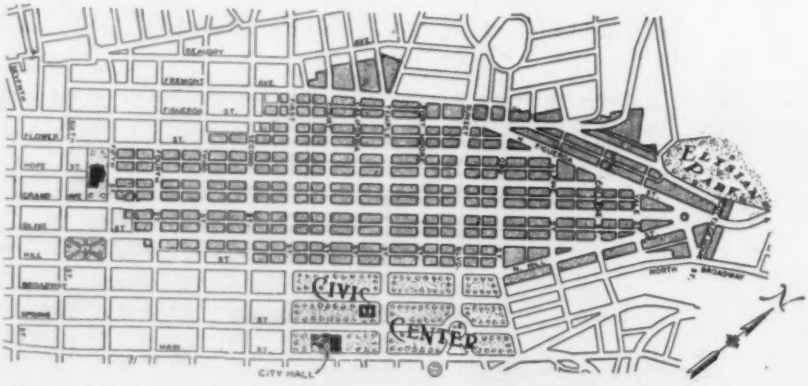
In the past, there have been several schemes advanced for the regrading and rehabilitation of this part of Los Angeles, yet each one of them was proved impractical and eventually given up. However, a group known as the Southwestern Investment Corporation, headed by C. C. Bigelow as President and General Manager, which had been formed for the express purpose of purchasing or leasing land, in and about Los Angeles, that was below grade and subject to filling with excavated earth, saw possibilities in a regrade of Bunker Hill. They visualized the benefit to be derived through the removal of this barrier to the normal growth and expansion of the city's more congested area and have devised what is known locally as the Bigelow Plan for carrying the project to completion.

This plan comprises a unique method of financing so huge a project. Under it, the actual cost of the work will be entirely paid for through an increase in the market value of the property within the area. The property owners will not be asked to contribute a single dollar. Neither will the city be asked to contribute more than the necessary amount for maintenance of the city improvements in any like area. Even the regrading and paving of the streets and the construction of conduits for public utility use will be taken care of and are provided for in the general construction plan.

Under this plan, the "proposed area for regrade and resubdivision" will be purchased outright by a corporation, yet to be formed, which will issue both preferred and common stock. An eastern financial unit is said to be ready to underwrite bonds to the amount of $40,000,000, to be furnished as and when needed both for the purchase of property and for construction work. Appraisal of property in the area is just being started and the property owners are offered the option of taking the appraised value in cash or in stock in the corporation and thus acquire a share in the future profits.

Anticipate Six Years' Work

The appraising will probably require from three to four months; then comes the actual field engineering work, and after that the excavation. The entire project has been informally approved by all the necessary municipal and state authorities, as well as by nearly every one of the owners of the property that will be affected. It is expected that actual excavation will start early in the spring of 1930, and that within a period of approximately six years the hill with its total of approximately 20,000,000 cubic yards will have been removed and the resubdivision of the area completed.



MAP OF PORTION OF CENTRAL BUSINESS DISTRICT, SHOWING, BY SHADING, THE AREA TO BE AFFECTED BY THE BIGELOW PLAN

TWO VIEWS OF LOS ANGELES' UNDEVELOPED BUNKER HILL SECTION, WHICH IT IS PLANNED TO IMPROVE
The photograph at left shows how close that hilly area is to the City Hall, and that at the right indicates why it is unattractive for homes and a barrier to business

How the Amenities Are Safeguarded in the British Town-Planning Act

Registration of Trees—Regulation of Billboards—Preservation of Architectural Harmony

WRITING in a recent issue of our English contemporary, *Garden Cities and Town Planning*, A. T. Pike calls attention to certain provisions of the British Town Planning Act which may have special interest for the many American municipalities that are giving increasing attention to the amenities of city development. To quote in part:

Trees

"There has been a persistent outcry during the past few years against spoliation of amenities by the ruthless and senseless destruction of trees. The private speculative builder is the worst offender, but local authorities and the Ministry of Transport are by no means absolved from criticism in this respect. In areas which are well wooded, or where there is a general distribution of trees, a town-planning scheme enables the local authority to control the direction of roads and the siting of buildings in such a way as will not interfere with a tree, group of trees, or an avenue, more than is unavoidable. Accordingly, a survey must be made of existing trees, and one of the clauses of the scheme gives power to the council to register a tree or group of trees, so that no person shall cut down or wilfully destroy them, without the consent of the council. The type of trees to be registered and so preserved is generally limited to trees of a height of not more than 30 feet, or a girth limit of 2 feet 6 inches measured at a height of 5 feet. These measurements should be taken as the minimum dimensions and may be varied according to local needs.

Outdoor Advertising

"The legislation affecting the control of advertisements is contained in the Advertisements Regulation Acts, 1907-25, and in the Town-Planning Act. Under the former acts a local authority has power to make by-laws for regulating, restricting or preventing the exhibition of advertisements, so as not to injure or disfigure (*a*) the view of rural scenery from a highway or railway or any public place, (*b*) the amenities of any village within the district of a rural district council, or (*c*) the amenities of any historic or public building or monument, or of any place frequented by the public solely and chiefly on account of its beauty or historic interest.

"These powers, therefore, are limited in their application. Wider powers are given under the Town-Planning Act, by which a council may serve a notice upon any person requiring him within reasonable time to take such action, including the removal of an offending advertisement where the amenity of the district or any public or private open space in the area is seriously injured by the display of any advertisement. This clause shall not prevent the display of advertisements upon land relating solely to any trade or business carried on or to be held upon such land; neither for a period of five years from the date of the approval of the Scheme shall existing holdings or similar structures erected or in use prior to that date be affected.

"In the process of 'tidying up' the district, this same clause empowers a local authority to deal with the condition of any garden, curtilage or private open space in the area by serving a notice upon the owner to remedy the injury caused by such condition.

Design of Buildings

"Hitherto, no power has existed which could prevent the intrusion into a seventeenth century street of a modern shop complete with its plate-glass window and glaring lettered panel; neither could there be avoided the erection of a building in a row or group of other buildings of a design flagrantly incompatible with adjoining property. Such power has long been sought by those who care for harmony, and a clause has been prepared and published by the Minister of Health by which such power is given. The issue of this clause was preceded by similar powers being obtained in private acts by the corporations of Oxford, Bath, Edinburgh, Newcastle, Hastings, among others.

"The clause empowers a local authority to approve or disapprove the elevation of buildings proposed to be erected within the area of the scheme. If, in their opinion, such building is likely to injure the amenities of the district, whether on account of the design or the undue repetition of design, or of the materials proposed to be used, they may reject the plans. In the event of a dispute, the plans can be referred to an advisory committee, which is constituted of three members: (1) an architect nominated by the President of the Royal Institute of British Architects; (2) a surveyor nominated by the President of the Surveyors Institution; and (3) a justice of the peace, not being a member of the local council, nominated by that council."

EDITORIAL NOTE.—Recent articles in THE AMERICAN CITY on the control of residential environment include those about Radburn, N. J., on page 98 of the June issue, Wauwatosa, Wis., page 97, July, and Hollister, Mo., page 123 of this issue.

The Effect of a Parkway in Stabilizing or Increasing Adjacent Land Values

THE possibilities of parkways as a part of the broad landscape planning of park tracts, boulevards, etc., in their economic as well as their esthetic implications, first presented themselves in full force in records of the Bronx Parkway development and related projects later carried through by the Westchester County Park Commission, in New York State. Planning engineers, regional plan officials, park commissioners, and others in various parts of the country who have had such schemes of their own deferred as representing unjustifiable present public expenditures, have lately taken new courage. These will find further heartening example in the history of the Niagara River Parkway.

This parkway has been developed for a distance of 35 miles between Lake Erie and Lake Ontario, in Ontario, by the Queen Victoria Niagara Falls Park Commission, and is now one of the most beautiful stretches of scenic highway in America. To quote the Commission as to the effect of this development on surrounding land values:

"It is sometimes stated that scenic values cannot be expressed in terms of money, but the effect of park and open spaces, properly kept, upon adjoining properties can everywhere be seen, and a comparison of assessed values will invariably indicate that . . . parkways not only stabilize land values, *but increase them even in districts where the general tendency is downward rather than on the ascent.* In large cities this feature accompanying the development is very marked and may be followed from the edge of the park property in decreasing scale to points more remote. This effect may be observed throughout the properties adjoining the Niagara Falls Park and Parkway areas, and in every instance the more desirable lots for dwellings are close to their borders.

"The most marked instance is along the Parkway from Chippewa to Bridgeburg, where farm lands prior to the building of roads and boulevards sold at prices below the average for good agricultural lands and are now held at higher figures than interior property in the urban municipalities along the Niagara River. Only the lack of facilities to accommodate the exchange of traffic across the river has prevented prices going far beyond their present limits.

"There is nothing strange or miraculous about the process, for parks and parkways tend to promote the building of high-class residences and to discourage the creeping-in of inferior structures. With the assurance of stability, therefore, there is a great incentive to build high-grade dwellings with spacious grounds, planted in keeping with the surroundings. The Parkway system has added value to the bordering frontier beyond any other development in the Niagara District."

"I may add," says John H. Jackson, General Manager of the Niagara Parks Commission, "that land values adjacent to this Parkway have increased over 500 per cent due entirely to the effect of the Park."

Why the Federated Pittsburgh Plan Failed to Carry; Defeated Plan to Be Resubmitted

OFFICIAL figures now available confirm the defeat in Allegheny County, Pa., on June 25, as reported on the basis of unofficial returns in the July number of THE AMERICAN CITY, of the regional government charter under which would have been set up a city of 122 municipalities, opening on a federated plan. Because of the widespread interest in this proposed metropolitan city of Pittsburgh, the following statement of facts is submitted by Joseph T. Miller, Chairman of The Metropolitan Plan Commission for Allegheny County:

"The charter was not adopted, by reason of the unusual and peculiar conditions inserted in the constitutional amendment by the opponents of the idea during consideration of the constitutional amendment in the Legislature. This requirement was that in order to be accepted by the people, the charter had to be approved in a twofold way. First it had to carry in the county at large by a majority vote, and second, and in addition to that, it must carry a majority of municipalities (or sixty-two) by not less than two favorable votes to every negative vote. Notwithstanding the fact that the charter received in the county a majority of 46,834 votes, and notwithstanding the fact that it carried eighty-four municipalities by a majority vote, it won in only forty-nine municipalities by a vote of two to one or better. Only thirty-seven municipalities were against it by a majority vote, and in one municipality the vote was a tie.

"Although THE AMERICAN CITY has on several occasions made reference to this unique proposal for a metropolitan form of government, you may wish to publish as a matter of record the following brief summary of what has happened during the last six years:

"In 1923, after a long struggle between the annexationists and the anti-annexationists, the Legislature of Pennsylvania first authorized a Commission to be appointed by the governor of the state to study the subject of municipal consolidation within Allegheny County. This Commission was appointed in 1924 and has made a report of its work to the several Legislatures since that date and in each instance has been continued by the Legislature for successive terms of two years.

"As a result of its labors in the year 1928, an amendment to the constitution of the state of Pennsylvania was adopted by the people of the state which provides for a new form of county government to take care of metropolitan necessities by taking the existing county government, establishing it as the legislative and administrative head of a federated city of smaller units, giving it broader powers and yet leaving the local municipalities supreme in their own individual sphere. It was stated in the amendment that the Legislature might offer to the people of Allegheny County a charter under which these results could be obtained, provided certain safeguards to local self-government were written into the charter which would guarantee each municipality its own continued existence, the sanctity of its boundaries and the right of local self-government in local affairs.

"Following the adoption of this amendment to the constitution, the Commission prepared a tentative charter and submitted it to the Legislature. It consisted of twenty-three articles. After many weeks of conferences and discussions the Legislature finally passed the charter in an amended form, having dropped eight sections of the original charter and rewritten two. These amendments were made by men of the highest legal ability and were adopted in order to reconcile conflicting opinions and influences. The Commission, believing the charter as amended by the Legislature to be a tremendous forward step over existing conditions, and knowing that it accomplished every purpose that had been originally intended, gave to the charter its fullest support, notwithstanding that many of the idealistic features submitted by the Commission had been eliminated during passage through the Legislature.* The Legislature set June 25 as the date for a special election in Allegheny County on the charter. A six-week intensive campaign was conducted. The result has already been stated.

"The constitutional amendment itself provided that should the charter fail after submission by the Legislature, it can be resubmitted in original, new or modified form. It is the present intention of the Metropolitan Plan Commission to secure this resubmission in the original form at as early a date as the situation will permit. To present it in new or modified form would delay action until after the spring of 1931, the Legislature not meeting again until that year."

* For an analysis of the allocation of functions between the consolidated city and the municipal divisions, as proposed by the Commission and as modified by the Legislature, see THE AMERICAN CITY for June, 1929, pages 120-121.

An Amazing Attempt to Make "The Sky the Limit" in Chicago

THE granting on July 8 of a permit for a 60-story building drew public attention for the first time to a mysterious amendment to the zoning ordinance which had been quietly adopted by the Chicago City Council on June 14. Under the amendment, if it is allowed to stand, it will be possible for buildings under certain conditions to be erected to a height of 440 feet, without setback, as compared with the exceedingly liberal allowance of 264 feet heretofore in force; and on top of the 40-story structure which the new rule would permit, towers might rise to a height limited only by the imagination or finances of the promoter.

The amendment modifies section VI of the existing zoning ordinance by adding, as Sub-Paragraph 1 of Paragraph E of said section, the following:

"The street line height limit in a Fifth Volume District shall be increased 66 2/3 per cent of such height limit on all frontages of premises three sides of which adjoin streets, one of which sides abuts a street greater in width than 100 feet, and one of which sides is across the street from a public park, public playground, public waterway, or cemetery, it being the intention of the provisions of this paragraph to increase the ultimate height limit of said described premises."

As reported in the *Chicago Tribune* of July 15, the record of the City Council shows that the amendment was introduced on May 2, recommended by the Committee on Buildings and Zoning (of the City Council) on June 3, and passed by the Council on June 14. All this had taken place without the knowledge, apparently, of the groups especially interested in maintaining proper standards of city planning and zoning in Chicago.

On July 8—the very date that the ordinance became effective—application was filed and permit granted to the O. W. Rosenthal-Cornell Co. for a 657-foot building to be known as the Cuneo Tower, and to be erected on a plot 90 x 70 feet at the northeast corner of Michigan Avenue and Randolph Street. A few days later public protests voiced by the Illinois Society of Architects and the Chicago Chapter of the American Institute of Architects, demanded reconsideration of the amendment, and the City Council's Committee on Buildings and Zoning ordered Building Commissioner Paschen to cancel the permit, the reason given being that the amendment had slipped through the Council without discussion—and this notwithstanding the fact that the zoning ordinance provides that no variations or amendments shall be made without a hearing before the Board of Appeals.

The Corporation Counsel, it was reported in the *Chicago Tribune* of July 20, will hold that the committee order is not mandatory, but that Commissioner Paschen, as executive officer, may revoke the permit, at least until expiration of the thirty days allowed for an appeal by an injured property owner to the zoning Board of Appeals.

EDITORIAL NOTE.—The facing page, "Will Chicago Continue to Let Them Breathe?" was put in type before THE AMERICAN CITY had learned of the attempt described in the foregoing item to add to skyscraper congestion in Chicago. It is beyond belief that the cupidity or vanity of certain real estate interests and builders will be allowed to increase still further the congestion and discomfort of business life in America's second city.

Will Chicago Continue to Let Them Breathe?

These new Chicago skyscrapers, erected north of the Loop during the last five years, still have a chance to breathe. But unless Chicago improves its zoning ordinance, there is nothing to prevent the future crowding together, over practically the entire area shown in the lower picture, of sunlight-killing and congestion-breeding structures

ON THE SHORE OF LAKE MICHIGAN, SHOWN IN THE BACKGROUND, WILL BE STAGED THE CHICAGO WORLD'S FAIR IN 1933

P and A Photos

Seven Hundred Miles of Highway Lighting in and around Detroit

IT has long been recognized by those interested in the safety of our highways at night that little can be done in connection with the development of coordinated systems of highway lighting until suitable laws are passed by the state legislatures enabling the state highway commissions to apply part of the funds collected for road building and road maintenance to highway lighting.

Several states are now considering legislation of this character, notably Ohio and Wisconsin, and many other states have passed laws which permit the counties and townships to provide adequate highway lighting.

A bill was recently passed by the Michigan State Legislature which authorizes the township boards to provide for the lighting of township highways by artificial means. Under this act the township board of any township having an assessed valuation of more than $500,000, with an area of not more than 36 square miles, may vote a sum not exceeding $2,000 for any one year to provide highway lighting in such township, the expenses thus incurred to be paid out of the highway improvement funds provided by the state.

The new highway-lighting legislation in Michigan has aroused considerable interest throughout the state and a great deal of activity in and around Detroit. The Public Lighting Commission of Detroit is responsible for lighting about 310 miles of highways within the city limits, and the Detroit Edison Company furnishes the lighting equipment and energy for lighting nearly 400 miles of highways outside the city limits.

Like many of the earlier systems, the first highway lighting legislation made by the Detroit Edison Company was equipped with radial wave streethoods and bare lamps suspended from mast-arms over the center of the roadway. Comparatively small lamps were used and the visibility was sufficiently good for the slow-moving traffic conditions prevalent.

As the demand for higher intensities of illumination became urgent, the Public Lighting Commission made an installation with streethoods equipped with band refractors mounted on 4-foot brackets on one side of the road. The illumination from this system was spotty and led to the installation by the Detroit Edison Company, on several miles of highway, of the nested parabolic reflector type of highway unit which throws the light in opposite directions up and down the highway. Difficulties experienced in keeping the nested parabolic reflectors clean led to the installation of a totally enclosed unit with refractors and reflector distributing a concentrated beam up and down the roadway. These were mounted on one side of the road and were discarded after a short trial because of unpleasant glare effects.

LIGHTING INSTALLATION FOR A TWO-WAY THOROUGHFARE AT LINCOLN PARK, MICH.

Two Westinghouse rigid-suspension Luxsolite units are mounted one on each side of every transmission-line pole

The first really effective installation in the vicinity of Detroit was on Woodward Avenue in Royal Oak, Mich. Woodward Avenue is a super-white-way with two one-way traffic lanes on each side of a central parkway. The parkway carries a high line, and the poles are used to support the lighting units.

In this installation, Westinghouse series Multilux units equipped with Holophane two-way refractors are mounted on short swivel brackets on each pole. The poles are spaced about 150 feet apart and the units are mounted at 30 feet. They were equipped with 2,500-lumen lamps. The refractors in this installation are so oriented in relation to the two traffic lanes as to distribute the light from the opposite beams on the lanes in the same direction as the moving traffic. Similar systems are in use at Kalamazoo, Mich., and Fort Worth, Texas (see THE AMERICAN CITY for August, 1928, page 100).

Later, 6,000-lumen lamps were adopted by the Detroit Edison Company as standard for highway lighting, and Westinghouse rigid-suspension Luxsolites with auto-transformers were substituted for the Multilux units. In one installation at Lincoln Park, Mich., there are two of this type of pendants with 6,000-lumen lamps mounted on each pole with a spacing of about 110 feet.

On single traffic highways, the same unit has been used with a spacing of 300 feet and mounted on span wires directly over the center of the roadway at a height of 30 feet. Lamps of 6,000 lumens are used in this installation, and a glareless illumination of high intensity with a high degree of uniformity is produced.

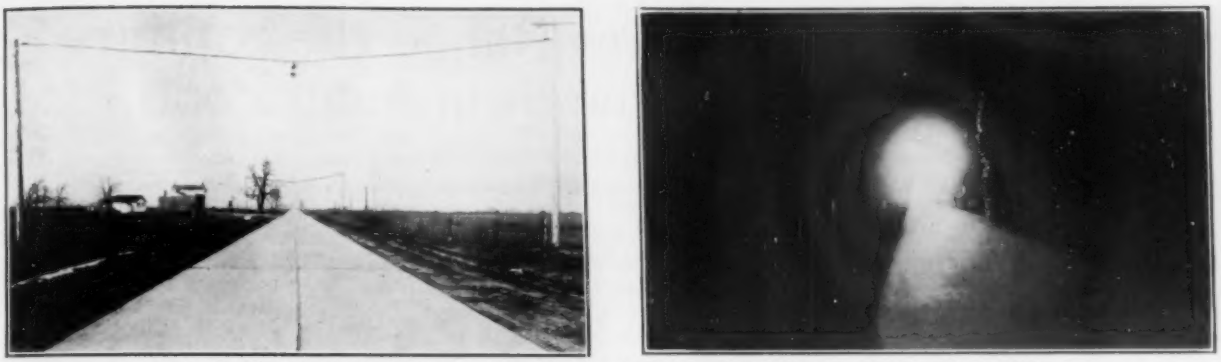
In the later installations, series transformers are mounted on the poles, and low-tension current from the secondary coil of the transformer is carried to the lighting unit. This eliminates any possibility of an open circuit in the series line due to breaking of the wire between the unit and the pole.

W. R. WILLIAMS.

Center-Span Lighting with Special Suspension

AIDED by the Michigan law permitting townships to appropriate up to $2,000 annually for lighting purposes, an important highway, De Quindre Road, north of Detroit, has been lighted for six miles by a system of fixtures with 600-candlepower incandescent lamps, mounted 300 feet apart and 30 feet high, resulting in lighting that is practically as good as the lighting on most city streets in residential districts. Because of local laws it was not possible to install pole lines close enough to the edge of the paved road surface to employ efficiently the bracket or mast-arm fixtures; and it therefore was necessary to employ the center-span type of construction, mounting the units over the center of the roadway at a height of approximately 30 feet from the light center. To do this an extra pole had to be installed on the opposite side from the pole line. Series circuits are used, with IL transformers for each unit.

Since it was necessary to mount the units over the center of the roadway, a height of at least 30 feet was required in order to place them out of the line of vision, thereby eliminating the possibility of glare. At such a height the effective light on the roadway was reduced, and part of it was wasted on the ditches and sides of the roadway. To concentrate the greatest amount of light up and down the roadway and downward toward the road

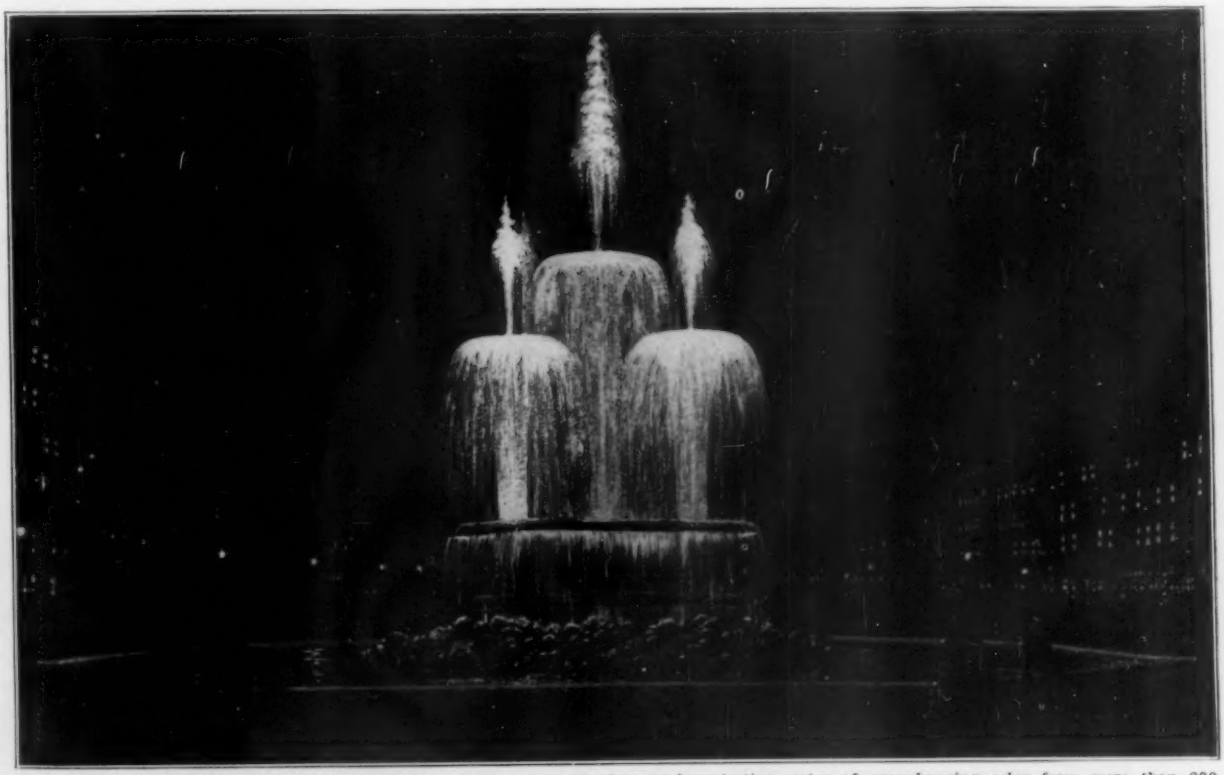


DAY AND NIGHT VIEWS OF LIGHTING ON DE QUINDRE ROAD, OUTSIDE OF DETROIT, MICH.
Center-span arrangement is used, with General Electric Co. Form 42 units, 6,000-lumen lamps and 2-way 180° bowl refractors

surface, it was found desirable to mount fixtures equipped with two-way bowl refractors. These refractors, when directed so that the maximum beam of light was up and down the center of the road, were glaring; but this was overcome by turning the refractors a few degrees toward the edge of the road in the direction of traffic, with excellent results.

Because of the center span mounting of 30 feet, it was necessary to provide means of servicing the units, but tower wagons were not available. It was found that a cutout type of fixture was desirable, but the design previously used for arc lamps was not satisfactory, since the circuits from the pole line to the fixture were lowered with the fixture. Such an installation was unsightly and had high maintenance because of the circuits swinging in the wind and breaking off. Furthermore, such devices would not orient the fixture when it was returned to its operating position, providing proper light distribution. It was therefore necessary to design a new device for this particular application. The design adopted, General Electric Co. Form 42, consists of a combination orienting pulley and cutout, together with a new center span unit. Means are provided for clamping this combination rigidly to the span wire, parallel to which is run the secondary circuit of the transformer, connected directly to the cutout part of the fixture, which in turn is fastened rigidly to the span wire. The fixture itself is fastened to the orienting device, which is attached to the end of a rope. This rope is run back to the pole, parallel to the span wire, and then down the pole to a cleat. To lower the fixture the rope must be pulled tight, thus unlatching and disconnecting the fixture and permitting it to be lowered to the ground for servicing. When the fixture is pulled back into place, the orienting device swings it into proper position for correct light distribution, and a latch holds it in place. At the same time connections between the fixture and the circuit are made.

Fountain of Light Recently Erected in Atlantic City



This electrically operated and illuminated fountain, 60 feet across the base and projecting water of ever-changing color from more than 200 nozzles, has been constructed in Atlantic City, N. J., by the General Electric Co., on city property, in honor of the city's diamond jubilee and to celebrate the Golden Jubilee of Light, held in that city this summer to commemorate the 50th anniversary of Edison's first incandescent lamp. With rays of colored light from 30 submerged floodlight projectors, each equipped with five color screens and a 1,000-watt Mazda lamp, and the water ever changing in height, a striking appearance is presented. Twelve automatic light changes and six changes in the height and volume of water make possible 72 different effects. The fountain will be a permanent possession of the city

How Wilmington Has Raised the Sanitary Standards of Its Nine Swimming Pools

By RUSSELL T. DES JARDINS

CHEMIST-BACTERIOLOGIST, BOARD OF HEALTH, WILMINGTON, DEL.

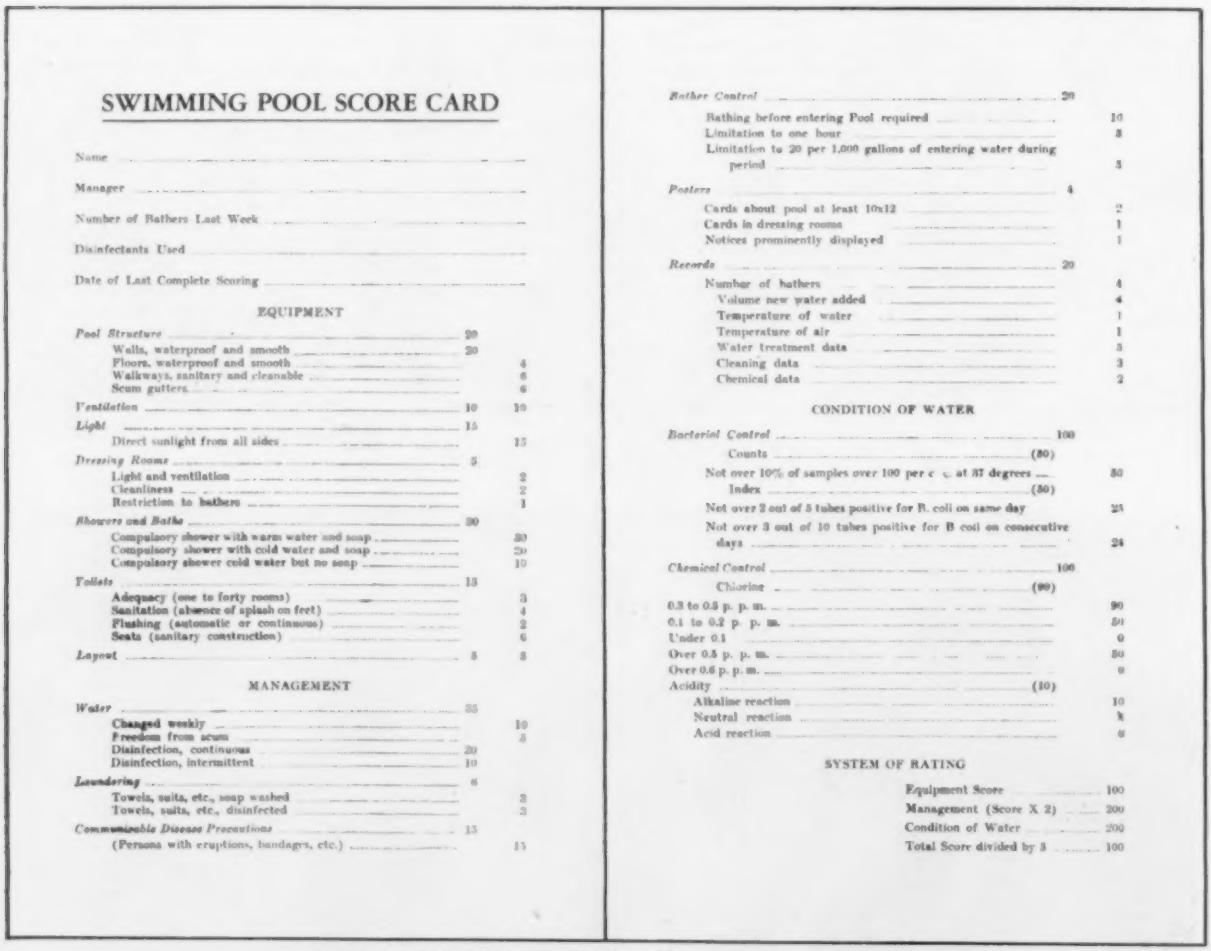
FOR a number of years, Wilmington, Del., has been attempting to better the sanitary conditions of its five municipal and four privately owned swimming pools. During the 1928 season excellent results were obtained by the use of a rating scheme based entirely on the chemical and bacteriological condition of the water in the various pools. This method, however, had certain drawbacks which it seemed advisable to remove. Chief among these was a conscious attempt on the part of certain small pools to secure a high rating by over-chlorination of the water. As a result of this tendency, pools which were known to be inferior in construction and operation to other pools, were able to stand high in the weekly rating.

Another point which developed during the 1928 season was the fact that certain swimming pools were able to maintain sanitary conditions with a residual chlorine content of from 0.2 to 0.3 p.p.m., while other pools were obliged to maintain a full 0.5 p.p.m in order to maintain the same sanitary condition.

These and other facts made it necessary to revise the system of rating for the 1929 season. Hence, in April the Board of Health adopted, as the basis for their rating of swimming pools, the above score sheet, which attempts to score each pool on the basis of:

Equipment	100
Management	200
Water	200

This score sheet is similar to that used in Baltimore.* Two important changes were made. First, the standard for the bacteriological condition of the water was raised to meet the Treasury standards for drinking water. Second, a penalty was provided for over-chlorination, starting with a score of 90 points for a residual chlorine of from 0.31 to 0.50 p.p.m.; 50 points for from 0.51 to 0.60 p.p.m., and no score for chlorine in excess of 0.60 p.p.m.



SWIMMING POOL SCORE CARD

Name

Manager

Number of Bathers Last Week

Disinfectants Used

Date of Last Complete Scoring

EQUIPMENT

Pool Structure	20	
Walls, waterproof and smooth	20	
Floors, waterproof and smooth		4
Walkways, sanitary and cleanable		6
Scum gutters		6
Ventilation	10	10
Light	15	
Direct sunlight from all sides		15
Dressing Rooms	5	
Light and ventilation		2
Cleanliness		2
Restriction to bathers		1
Showers and Baths	30	
Compulsory shower with warm water and soap		30
Compulsory shower with cold water and soap		20
Compulsory shower cold water but no soap		10
Toilets	13	
Adequacy (one to forty rooms)		3
Sanitation (absence of splash on feet)		4
Flushing (automatic or continuous)		2
Seats (sanitary construction)		4
Layout	5	5

MANAGEMENT

Water	35	
Changed weekly		10
Freedom from scum		5
Disinfection, continuous	20	
Disinfection, intermittent	10	
Laundering	6	
Towels, suits, etc., soap washed		3
Towels, suits, etc., disinfected		3
Communicable Disease Precautions	15	
(Persons with eruptions, bandages, etc.)		15
Bather Control	20	
Bathing before entering Pool required		10
Limitation to one hour		5
Limitation to 20 per 1,000 gallons of entering water during period		5
Posters	4	
Cards about pool at least 10x12		2
Cards in dressing rooms		1
Notices prominently displayed		1
Records	20	
Number of bathers		4
Volume new water added		4
Temperature of water		1
Temperature of air		1
Water treatment data		5
Cleaning data		3
Chemical data		2

CONDITION OF WATER

Bacterial Control	100	
Counts	(50)	
Not over 10% of samples over 100 per c. c. at 37 degrees		50
Index	(50)	
Not over 2 out of 5 tubes positive for B. coli on same day		25
Not over 3 out of 10 tubes positive for B coli on consecutive days		25
Chemical Control	100	
Chlorine	(90)	
0.3 to 0.5 p. p. m.		90
0.1 to 0.2 p. p. m.		50
Under 0.1		0
Over 0.5 p. p. m.		50
Over 0.6 p. p. m.		0
Acidity	(10)	
Alkaline reaction		10
Neutral reaction		5
Acid reaction		0

SYSTEM OF RATING

Equipment Score	100
Management (Score X 2)	200
Condition of Water	200
Total Score divided by 5	100

FORM USED IN RATING SWIMMING POOLS IN WILMINGTON, DEL.

Cooperation with Board of Health

The idea of the score sheet is not new. Possibly our method of scoring, however, has some new features. In order to secure an impartial scoring of all pools, the Board of Health sought the cooperation of the Delaware Safety Council. The Safety Council had frequently shown interest in this phase of the work of the Board of Health, and the need for

* See *The Municipal Index* for 1929, pages 563-566.

an impartial scoring of the pools presented an opportunity for active cooperation between these two bodies.

As a result of this cooperation, together with the cooperation of the Wilmington Park Commission, which has direct supervision over the five municipal pools, there has been a marked betterment in the sanitary condition of all swimming places. Many decided improvements in equipment and in the management of the pool have been made, and many unsatisfactory and unsanitary conditions have been overcome.

The public have shown a keen interest in the project and seem to be watching carefully the published rating of the nine local pools.

Two of the swimming pools make use of liquid chlorine as a sterilizing agent, while the rest depend on sterilization with a concentrated sodium hypochiorite solution.

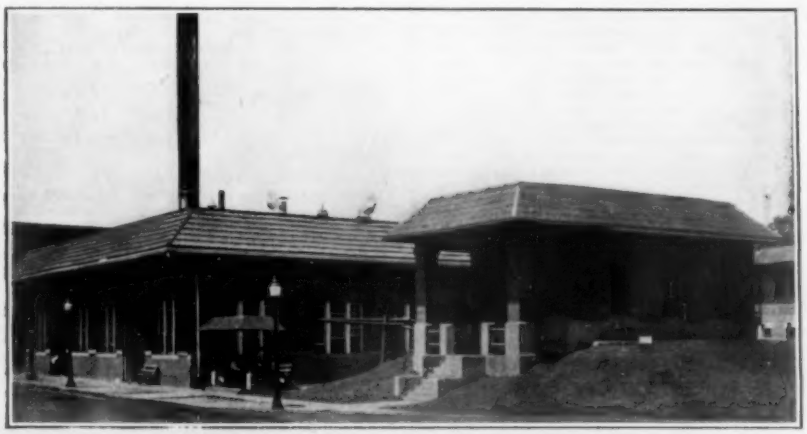
Another indication of the results of tihs work is the fact that during the seasons of 1928 and 1929 not a single case of infection has been traced to any of the swimming pools involved. Prior to that time, many cases of eye, ear, nose and skin infection were traced to the condition of the swimming pools by the local medical societies.

Municipal Electric Profits Pay for New City Hall

CITY officials of Hope, Ark., a municipality of some 7,000 inhabitants in the southwestern part of the state, take satisfaction in pointing to the fact that they have erected a $100,000 municipal building without a bond issue and without the levy of a special building tax of any kind. A story of Hope's City Hall is the story of the successful operation of her municipal power-plant. The municipal building was built and paid for from the profits of the power-plant.

Hope officials are proud of their accomplishments. Every visitor to that city has an opportunity to learn of the achievement. Outside the municipal building is an attractively painted sign, which reads: "Profits from our municipal power-plant are paying for this City Hall."

The Mayor and Board of Aldermen estimated that they could make payments at the rate of $8,500 or more per annum, but it developed that three times this sum could be applied each year, and it is expected that the last dollar will be paid by the end of 1930.



THE MUNICIPAL LIGHT AND POWER PLANT AT HOPE, ARK., AND (ABOVE) THE NEW CITY HALL THAT IT IS PAYING FOR

The municipal building provides offices for all the city's officials, the county superintendent of schools, and the county farm and home demonstration agents, headquarters for the Hope Chamber of Commerce, rooms for a public library, and an auditorium that will seat approximately 1,000 people.

The success that has attended efforts of the Hope city officials, it is pointed out, is due to the efficient operation and management of the electric plant. Experts who have inspected it, and auditors who have gone over the books, declare that it ranks among the leading plants of the country, in maximum production at lowest cost. Hundreds of visitors have seen it and have looked the municipal building over, and have carried away with them practical ideas to put into effect in a score of other cities in the Southwest.

The municipal power-plant is estimated to be worth $300,000. It is free from debt and returns a nice profit to the city annually. Since 1924, new equipment costing $97,000 has been added, including the present turbo-generaors—a 500-kw. Westinghouse unit and a 1,000-kw. General Electric unit—and a 200-hp. Worthington air compressor; a 500,000-gallon reservoir was also constructed. The auditor's report gives a concrete idea as to just what Hope has been doing in the operation of its plant for three years past:

Year Ending	Net Profit	Free Service	Total
July 12, 1926	$22,227.31	$15,492.71	$37,720.02
July 12, 1927	9,863.65	17,145.45	27,009.10
July 12, 1928	23,777.22	18,664.91	42,442.13

The operation of the plant for 1928 showed a remarkable improvement over the previous year, revealing an increase of $4,804.75 in income and a decrease of $9,108.82 in operating expenses. Figures already available for 1929 show that there will be another healthy growth this year and a consequent increase in revenue and a lessening of operating expenses.

The rates now in effect are:

Lighting, 12½c per kwh. for the first 100 kwh. per month, 10c for the next 200, and 5c thereafter; minimum monthly bill, 50c. Cooking, 3c. Electric refrigerators, and motors of 5 hp. or less, 5c up to 300 kwh., 4c thereafter. Power, 100 hp. demand or more, $1.00 per hp. per month, plus kwh. rates ranging from 2c down to 0.7c.

A bill that would have placed all municipal power-plants under the control of the State Railroad Commssion was under consideration by the last Legislature, but failed of adoption during the session. Residents of Hope opposed the bill, and it was decided to erect the sign at the City Hall to call public attention to the fact that net revenue of the power-plant will almost pay the entire expenses of the municipal government, thus greatly diminishing taxes.

PAUL J. PIRMANN.

A Survey of Water-Meter Rates in the United States—Part III

The rates here given in detail are from the original reports furnished to THE AMERICAN CITY *in connection with the water-supply statistics published in The Municipal Index for 1929. In The Municipal Index only domestic maximum and industrial minimum rates were given, together with many other statistics besides rates.*

ILLINOIS (Continued)

Edwardsville, 10,000.

Gals. per Month	Per 1,000 Gals.
First 15,000	50¢
Next 15,000	35¢
" 70,000	25¢
" 150,000	20¢
" 250,000	15¢
First 500,000	13¢
Second 500,000	12¢
Over 1,000,000	11¢

Elgin, 35,000.

Cu. Ft. per Quarter	
First 700 (minimum)	$1.50
	Per 100 Cu. Ft.
700 to 3,300	16¢
3,300 to 8,000	15¢
8,000 to 16,000	13¢
16,000 to 28,000	11¢
Over 28,000	7¢

Elmhurst, 15,000.

Gals. per Day	Per 1,000 Gals.
0 to 1,000	30¢
1,000 to 5,000	25¢
Over 5,000	20¢

Minimum, $1.50 per quarter.

Elmwood, 1,300.

Gals. per Quarter	Per 1,000 Gals.
First 3,000	60¢
Next 5,000	35¢
Over 8,000	30¢

Minimum, $1.80 per quarter.

Eureka.

Gals. per Month	Per 1,000 Gals.
First 2,000	50¢
Next 3,000	45¢
" 5,000	40¢
Over 10,000	35¢

Minimum, $1.00 per month.

Evanston, 75,000.

Cu. Ft.	Per 100 Cu. Ft.
First 10,000	12¢
Next 15,000	10¢
" 25,000	8¢
Over 50,000	7¢

Galesburg, 30,000.

Cu. Ft. per Quarter	Per 100 Cu. Ft.
First 1,200	45¢
Next 12,000	27¢
" 40,000	18¢
Balance	13½¢

Geneseo, 3,500.

Gals. per Quarter	Per 1,000 Gals.
First 5,000	35¢
Next 10,000	30¢
" 10,000	25¢
Over 25,000	20¢

Minimum, $1.50 per quarter for 4,300 gallons.

Geneva, 4,135.

Cu. Ft. per Quarter	
First 500 (minimum)	$1.75
	Per 100 Cu. Ft.
500 to 3,000	30¢
3,000 to 6,000	25¢
Over 6,000	15¢

Harvard, 3,500.

Cu. Ft. per Quarter	
First 500	$2.00
	Per 100 Cu. Ft.
Next 1,000	37½¢
" 500	34½¢
" 500	31½¢
" 500	28½¢
" 2,000	25½¢
" 2,000	22½¢
Over 7,000	13½¢

Hinsdale, 7,500.

Cu. Ft. per Quarter	Per 1,000 Gals.
First 8,000	48¢
8,000 to 20,000	39¢
20,000 to 40,000	29¢
Over 40,000	20¢

Minimum, $3.30 per quarter.

Joliet, 45,000.

Cu. Ft. per Quarter	Per 100 Cu. Ft.
First 10,000	50¢
Next 40,000	40¢
50,000 to 75,000	30¢
Over 75,000	25¢

Minimum, $3.00 per quarter.

Definitions

Meter Rent.—In some works a charge is made for the rent of meters furnished and owned by the department. Where such a charge is made, it is in reality a service charge and it must be so classified. The service charge as now used ordinarily covers meter rent and much more, so that the meter rent represents only a fraction of the amount of what may be considered the normal service charge. Cases may be found where meter rents are used in connection with a minimum rate, but with this minor exception the service charge is not used in connection with a minimum rate.

Minimum Rate.—A minimum rate is an amount that is collected in any event, even though the price of the quantity of water registered by the meter does not amount to it.

Service Charge.—A service charge is a charge for the service, which is in addition to the amount that is charged for water.

Modified Service Charge.—Under this form there is a minimum charge for a certain quantity of water, and the amount of the minimum is made up of what would otherwise be the service charge and the meter rate for that quantity of water that is furnished for the minimum charge.

Uniform Rate.—A rate per thousand gallons or per hundred cubic feet that is charged uniformly for all quantities of water sold.

Jump Scale.—The quantities of water up to a certain limit are charged at a certain price; beyond that limit and inside another limit another and lower price is made, and beyond that there is another limit and another price, and so on. In some cases, two prices only are used; in others three, four or more, up to a dozen or twenty; and, in fact, divisions may be so numerous that the scale practically becomes a table which gives the water rate for every quantity of water that a meter records.

Modified Jump Scale.—Under this arrangement each step in the jump scale is subdivided into two parts, the second of which comprises all those quantities for which it would be possible to get a lower rate by drawing more water. For these quantities a lump sum collection is made, which sum is the minimum that could be obtained under the next step. For the first part of each step the rate remains as with the jump schedule.

Sliding Scale.—Under this arrangement the water first drawn up to a certain limit is charged at a certain rate. Additional quantities are charged at a lower rate, but the higher charge on the first quantity remains as part of the bill in all cases.

—From "Meter Rates for Water Works," by Allen Hazen, published by John Wiley & Sons, Inc., New York.

Lawrenceville, 7,000.

Cu. Ft. per Month	Per 100 Cu. Ft.
First 267	54.5¢
Next 402	43.5¢
" 669	38¢
" 13,662	30¢
Over 15,000	20¢

If paid by 10th of month, discount of 5¢ per 100 cu. ft.

Minimum, $1.50 per month.

Lincoln, 12,000.

Minimum Charges

Size of Meter	Per Month
⅝" or less	$0.67
¾"	1.15
1"	2.30
1½"	4.60
3"	9.20
4"	18.40
6"	45.00

Cu. Ft. per Month	Per 100 Cu. Ft.
First 1,000	20¢
Next 99,000	9½¢
Over 100,000	5¢

Litchfield, 7,315.

Gals. per Month	Per 1,000 Gals.
First 25,000	50¢
Next 225,000	35¢
Over 250,000	12¢

Maroa, 1,220.

Gals. per Quarter	
First 3,000	$2.00
	Per 1,000 Gals
Next 2,000	40¢
" 3,000	35¢
" 4,000	30¢
Over 12,000	25¢

Mendota, 4,500.

Cu. Ft. per Quarter	
400 or less (minimum)	$3.00
	Per 100 Cu. Ft.
400 to 3,000	35¢
400 to 15,000	30¢
400 to 40,000	25¢
400 to 120,000	20¢
400 to over 120,000	15¢

Monmouth, 12,000.

Gals. per Month	Per 1,000 Gals.	Total Bill
First 10,000	60¢	$6.00
Next 10,000	55¢	11.50
" 10,000	50¢	16.50
" 10,000	40¢	20.50
" 10,000	35¢	24.00
" 5,000	30¢	25.50
" 5,000	20¢	26.50
" 5,000	15¢	27.25
" 5,000	15¢	28.00
Over 70,000	15¢	

Discount if paid by 10th of month.

Gals. per Month	Per 1,000 Gals.
2,000 to 10,000	10¢
10,000 to 20,000	8¢
20,000 to 30,000	5¢
30,000 to 40,000	2¢

Minimum, $1.20 per month, less 20¢ if paid by 10th.

Murphysboro, 12,000.

Gals. per Month	Per 1,000 Gals. Gross	Net
First 20,000	36¢	33¢
Next 20,000	33¢	30¢
" 20,000	30¢	28¢
" 140,000	27¢	25¢
" 800,000	22¢	20¢
Over 1,000,000	11¢	10¢

Minimum, $1.10 per month, less 10¢ if paid within discount period.

Nokomis, 2,500.

Gals. per Quarter	Per 1,000 Gals.
First 10,000	40¢
10,000 to 25,000	30¢
25,000 to 50,000	25¢
50,000 to 100,000	20¢
100,000 to 200,000	15¢
Over 200,000	10¢

Minimum, $2.25, for 5,625 gallons.

Olney, 6,600.

Gals. per Month	Per 1,000 Gals.
First 12,500	50¢
Next 10,000	45¢
" 30,000	35¢
" 50,000	25¢
" 397,500	20¢
Over 500,000	15¢

Peoria, 105,000 (includes Averyville and Bartonville)

Cu. Ft. per Month	Per 100 Cu. Ft.
First 800	29¼¢
Next 2,400	19½¢
" 3,200	11¢
Over 133,300	7½¢

A basic room rate of 26¢ per room per quarter shall be charged and paid for all rooms in any residence served by a single meter, but not including toilets, closets and halls, provided that the quarterly room rate charge shall never be less than $1.04 for any building supplied through a single meter. The foregoing room rate charge shall cover the use of a single faucet and sink, but no other fixtures. All such buildings supplied

ILLINOIS (Continued)

through a single meter shall pay in addition to the room rate a quarterly minimum meter rate for the use of fixtures of each of the following kind:

For one or more baths	65¢
For one or more water-closets	65¢
For one or more wash-basins	32½¢
For one or more laundry sinks or tubs	32½¢
For one or more lawn or street sprinklers	97½¢

No minimum charge shall be made for any other fixtures or apparatus or for keeping animals on the premises.

Quincy, 41,000.

Gals. per Quarter	Per 1,000 Gals.
First 10,000	50¢
Second 10,000	40¢
Third 10,000	30¢
Next 70,000	25¢
" 100,000	20¢
Over 200,000	16¢

Less 10% if paid before the 10th. Lowest meter rate 8¢ per 1,000 gals. net.
Minimum, $10.00 per year.

Rock Island, 40,000.

Cu. Ft. per Quarter	Per 100 Cu. Ft.
First 10,000	14¢
Second 10,000	12¢
Third 10,000	10¢
Fourth 10,000	8¢
Over 40,000	6¢

Minimum, 70¢ per month.

St. Charles, 5,200.

Gals. per Quarter	
First 3,000	$3.00
	Per 1,000 Gals.
Next 22,000	25¢
Over 25,000	20¢

Discount of $1.00 if paid before 15th of month due.

Sandwich, 2,500.

Gals. per Day	Per 1,000 Gals.
400 or less	30¢
400 to 1,000	25¢
1,000 to 5,000	20¢
5,000 to 10,000	15¢
Over 10,000	10¢

Minimum, 40¢ per month.

Shelbyville, 1,200.

Gals. per Month	Per 1,000 Gals.
First 10,000	60¢
Next 10,000	40¢
" 10,000	33¢
" 20,000	27¢
" 50,000	23¢
Over 200,000	13¢

Minimum, $1.00 per month.

Streator, 20,000.

Cu. Ft. per Month	Per 100 Cu. Ft. Net	Gross
First 1,000	27¢	30¢
Next 99,000	13½¢	15¢
Over 100,000	7¢	7.8¢

Service Charge

Size of Meter	Per Month Net	Gross
⅝"	$0.40	$0.444
¾"	0.50	0.555
1"	0.75	0.833
1½"	1.10	1.222
2"	1.50	1.667
3"	2.25	2.50
4"	6.00	6.667
6"	13.50	15.00

Vandalia, 3,316.

Gals. per Quarter	
First 5,000 or less	$2.50
	Per 1,000 Gals.
5,000 to 10,000	50¢
10,000 to 100,000	30¢
100,000 to 500,000	20¢
500,000 to 1,000,000	10¢
1,000,000 to 5,000,000	8¢
Over 5,000,000	7½¢

Minimum Charges

Size of Meter	Per Month
⅝"	$1.00
¾"	2.00
1"	4.00
1½"	6.00
2"	10.00
3"	18.00
4"	36.00

Waukegan, 34,641.

Gals. per Quarter	
First 10,000	$2.50
	Per 1,000 Gals.
10,000 to 100,000	15¢
Over 100,000	13¢

Minimum for factories $4.00.
Meter rate for factories, 9¢ per 1,000 gals.

INDIANA

Anderson, 33,854.

Gals. per Month	Per 1,000 Gals.
Up to 7,500	24¢
" " 22,500	21¢
" " 45,000	18¢
" " 90,000	16¢
" " 500,000	13¢
" " 1,000,000	12¢
" " 2,000,000	10¢
Over 2,000,000	9¢

Minimum Charges

Size of Meter	Per Month
½ or ⅝"	$1.25
¾"	1.25
1"	2.25
1½"	3.75
2"	5.25
3"	8.25
4"	10.50
6"	15.00

Brazil, 10,000.

Cu. Ft. per Month	Per 100 Cu. Ft. Gross	Net
First 1,000	32¢	30¢
Next 2,000	28¢	26¢
" 2,000	22¢	20¢
" 5,000	14¢	14¢
Over 10,000	9¢	9¢

Minimum Charge

Size of Meter	Per Month Gross	Net
⅝"	$0.85	$0.75
¾"	1.15	1.00
1"	1.75	1.50
1½"	3.00	2.50
2"	5.25	4.00
3"	7.50	6.00
4"	10.00	8.00
6"	15.00	12.00

Net rates charged if bill is paid by 15th of month.

Chesterton, 2,800.

Gals. per Month	Per 1,000 Gals.	Total Bill
First 5,000	25¢	$1.25
Next 5,000	20¢	2.25
" 5,000	17¢	3.10
" 5,000	16¢	3.90
" 5,000	15¢	4.65
" 5,000	14¢	5.35
" 5,000	13¢	6.00
" 5,000	12¢	6.60
" 5,000	11¢	7.15
" 5,000	10¢	7.65
Over 50,000	Special rates	

For private resident consumers, the sum of $12.00 payable annually in advance entitles the consumer to 70,000 gallons of water, the excess to be billed at 17¢ per 1,000 gallons.

Clinton, 12,000.

Gals. per Day	Per 1,000 Gals.
100 to 200	30¢
200 to 300	25¢
300 to 1,000	20¢
1,000 to 3,000	18¢
3,000 to 10,000	15¢

10% added if not paid by the 15th of the month.

Columbia City, 4,200.

Gals.	Per 1,000 Gals.
First 10,000	30¢
Next 10,000	25¢
" 10,000	20¢
" 10,000	15¢
" 10,000	10¢
" 50,000	9¢
Over 100,000	8¢

Minimum, $6.00 per year for ⅝" meter.

Delphi, 2,500.

Gals. per Six Months	Per 1,000 Gals.	Total Bill
First 5,000		$2.00
Next 10,000	30¢	5.00
" 50,000	25¢	17.50
" 50,000	20¢	27.50
" 50,000	15¢	35.00
" 50,000	10¢	40.00
" 50,000	9¢	44.50
" 50,000	8¢	48.50
Over 315,000	7¢	

East Chicago, 58,000.

Gals. per Month	Per 1,000 Gals. Gross	Net
First 10,000	31½¢	28.35¢
Next 15,000	25¢	22½¢
" 25,000	20¢	18¢
" 250,000	15¢	13½¢
" 700,000	10¢	9¢
" 2,000,000	8¢	7.2¢
Over 3,000,000	6½¢	5.85¢

Summer Schedule
Effective May to October, inclusive.

Gals. per Month	Per 1,000 Gals. Gross	Net
First 5,000	31½¢	28.35¢
Next 10,000	15¢	13½¢
" 10,000	25¢	22½¢
" 25,000	20¢	18¢
" 250,000	15¢	13½¢
" 700,000	10¢	9¢
" 2,000,000	8¢	7.2¢
" 3,000,000	6½¢	5.85¢

Minimum Charges

Size of Meter	Per Month Gross	Net
⅝"	$1.25	$1.10
¾"	2.00	1.80
1"	3.50	3.15
1½"	5.00	4.50
2"	8.00	7.20
3"	15.00	13.50
4"	24.00	22.60
6"	40.00	36.00

Elkhart, 32,000.

Cu. Ft. per Month	Per 100 Cu. Ft.
First 3,300	15¢
Next 30,000	9¢
" 300,000	7¢
Over 333,300	5¢

Minimum Charge

Size of Meter	Per Month
⅝"	$1.00
¾"	1.50
1"	2.50
1½"	4.00
2"	6.00
3"	11.00
4"	15.00
6"	25.00
8"	50.00
10"	75.00

Fort Branch, 1,500.

Gals. per Quarter	Per 1,000 Gals.	Total Bill
First 9,000	33⅓¢	$3.00
Next 6,000	30¢	4.80
" 5,000	25¢	6.05
" 10,000	20¢	8.05
" 20,000	18¢	11.65
" 50,000	15¢	19.15
" 100,000	12¢	31.15
" 300,000	10¢	61.15

Minimum, $2.00 per quarter for 6,000 gallons from 1 or 2 openings. $3.00 per quarter for 9,000 gallons from more than 2 openings.

Fort Wayne, 110,000.

Cu. Ft. per Month	Per 1,000 Cu. Ft.
First 417	$1.20
Next 3,333	90¢
" 6,667	75¢
" 13,333	60¢
Over 23,750	48¾¢
	45¢

Minimum Charge

Size of Meter	Per Month
¾ and ⅝"	$0.50
1"	1.00
1½"	2.00
2"	4.00
3"	8.00
4"	16.00
6"	32.00

Gary, 110,000.

Gals. per Month	Per 1,000 Gals.
First 20,000	25¢
Next 130,000	10¢
Over 150,000	6¢

Charge for iastalling metter and furnishing water shall not be less than $9.00 per year.

Hammond, 70,000.

Gals. per Month	Per 1,000 Gals.
First 5,000	10¢
Next 5,000	9¢
" 15,000	8¢
" 75,000	7¢
" 400,000	6¢
" 500,000	5¢
Over 1,000,000	4¢

Minimum Charge

Size of Meter	Per Month
½, ⅝, ¾"	$0.75
1"	1.50
1½"	4.00
2"	4.00
3"	10.00
4"	20.00
6"	30.00

Huntington, 16,000.

Cu. Ft. per Quarter	Per 100 Cu. Ft.
First 1,300	30¢
Next 4,000	25¢
" 4,700	20¢
Over 10,000	10¢

Minimum Charges

Size of Meter	Per Quarter
⅝"	$1.50
¾"	2.00
1"	3.00
1½"	4.00
2"	6.00
3"	10.00
4"	15.00
6"	20.00

Indianapolis, 390,000.

Cu. Ft. per Month	Per 100 Cu. Ft.
First 700	21½¢
Next 11,300	14¢
" 18,000	12¢
" 20,000	10¢
" 50,000	8¢
Over 100,000	6¢

Minimum Charge

Size of Meter	Per Month
⅝"	$1.50
¾"	3.00
1"	4.50
1½"	7.00
2"	11.00
3"	20.00
4"	30.00
6"	50.00

INDIANA (Continued)

Knightstown, 2,000.

Gals. per Month	Per 1,000 Gals.
First 3,000	25¢
Next 7,000	20¢
" 15,000	15¢
" 25,000	12¢
" 50,000	10¢
Over 100,000	8¢

Lebanon, 7,000.

Gals. per Quarter	Per 1,000 Gals.
First 90,000	25¢
Next 90,000	21¢
" 90,000	20¢
" 90,000	18¢
" 90,000	16¢
Over 450,000	14¢

Minimum, $5.00 per year, payable quarterly.

Michigan City, 27,500.

Cu. Ft. per Month	Per 1,000 Cu. Ft.
First 5,000	50¢
Over 5,000	40¢

Minimum, $6.00 per year.

Mishawaka, 27,000.

Cu. Ft. per Quarter	Per 100 Cu. Ft.
First 8,000	15¢
Next 12,000	9¢
Over 20,000	7¢

Minimum Charge

Size of Meter	Per Quarter
⅝"	$2.25
1"	4.50
1½"	9.00
2"	12.00
3"	22.50
4"	45.00
6"	60.00
8"	75.00

Muncie, 41,000.

Gals. per Month	Per 1,000 Gals.
First 100,000	25¢
Next 150,000	18¾¢
" 250,000	15¾¢
" 250,000	12½¢
" 250,000	9¾¢
Over 1,000,000	6¼¢

Minimum Charges

Size of Meter	Per Month
⅝"	$1.25
¾"	2.25
1"	4.00
1½"	9.00
2"	16.00
3"	36.00
4"	64.00

Newcastle, 23,000.

Cu. Ft. per Quarter	Per 100 Cu. Ft. Gross	Net
First 2,000	13¢	12¢
Next 3,000	11¢	10¢
" 5,000	10¢	9¢
" 10,000	9¢	8¢
" 30,000	8¢	7¢
Over 50,000	6½¢	5½¢

Minimum Charge

Size of Meter	Per Quarter Gross	Net
½, ⅝, ¾"	$2.50	$2.25
1"	4.75	4.50
1½"	6.50	6.00
2"	13.00	12.00
3"	16.00	15.00
4"	52.00	50.00

Oakland City, 3,000.

Gals. per Month	Per 1,000 Gals.
First 7,500	30¢
Next 7,500	25¢
" 15,000	20¢
" 30,000	15¢
" 90,000	14¢
" 150,000	12¢
" 300,000	10¢

Minimum, 75¢ per meter per month.

Shoals, 1,300.

Gals. per Month	Per 1,000 Gals. Gross	Net
First 5,000	60¢	50¢
Next 5,000	55¢	45¢
" 15,000	50¢	40¢
" 25,000	45¢	35¢
" 25,000	37¢	27¢
" 25,000	30¢	20¢
Over 100,000	25¢	15¢

South Bend, 100,000.

Cu. Ft. per Month	Per 10 Cu. Ft.
First 10,000	15¢
Next 20,000	12¢
" 70,000	9¢
Over 100,000	5¢

Minimum Charge

Size of Meter	Per Month
⅝"	$0.75
¾"	1.25
1"	2.50
1¼"	3.00
1½"	5.00
2"	10.00
3"	15.00
4"	25.00
6"	40.00

Waterloo, 1,200.

Gals. per Month	Per 1,000 Gals. Gross	Net
First 6,000	30¢	25¢
Next 3,000	25¢	20¢
" 6,000	22¢	17¢
" 15,000	20¢	15¢
" 30,000	18¢	13¢
Over 60,000	17¢	12¢

Minimum, 75¢ per month for 2,500 gals. Net rate charged when bill is paid before 10th of month.

IOWA

Ackley, 1,600.

Gals. per Quarter	Per 1,000 Gals.
3,000 to 5,000	45¢
5,000 to 10,000	40¢
10,000 to 20,000	35¢
20,000 to 30,000	30¢
30,000 to 40,000	25¢
Over 40,000	20¢

Minimum, $1.50 per quarter.

Ames, 14,000.

Cu. Ft. per Month	Per 100 Cu. Ft.
First 750	30¢
Next 750	25¢
" 1,500	20¢
" 3,000	18¢
" 6,000	15¢
" 12,000	13¢

Meter Rental

Size of Meter	Per Month
Less than 1"	No charge
1"	$0.50
1½"	0.60
2"	1.00
3"	1.50
4"	3.00
6"	6.00

Minimum, 75¢ per month, for 285 cu. ft.

Belle Plaine, 3,600.

Gals. per Month	Per 1,000 Gals.
First 5,000	40¢
Next 10,000	30¢
Over 15,000	20¢

Minimum, 60¢ per month.

Boone, 13,000.

Cu. Ft. per Quarter	Per 100 Cu. Ft.
First 1,400	37½¢
Next 2,600	30¢
" 3,000	25¢
" 6,000	20¢
" 12,000	15¢
" 25,000	12½¢
" 50,000	10¢
" 100,000	9¢
Additional	8¼¢

Minimum, $2.00 per quarter.

Carroll, 4,500.

Cu. Ft. per Month	Per 100 Cu. Ft.
First 200	50¢
Next 200	30¢
" 400	25¢
" 800	20¢
" 1,100	17¢
" 1,500	15¢
Over 4,200	13¢

Minimum, $1.00 per month for 200 cu. ft.

Cedar Rapids, 51,000.

Cu. Ft. per Month	Per 100 Cu. Ft.
First 500	19¢
Next 1,000	18¢
" 1,500	15¢
" 2,000	13¢
" 2,000	12¢
" 5,000	10¢
" 10,000	9¢
" 20,000	8¢
" 20,000	7¢
" 40,000	6¢
Over 102,000	5¢

Minimum Charges

Size of Meter	Per Month
⅝"	$0.90
¾"	1.00
1"	1.25
1¼"	1.50
1½"	1.75
2"	2.00
3"	3.00
4"	5.00
6"	10.00
8"	15.00
10"	25.00

Subject to 15% discount.

Charles City, 8,000.

Gals. per Month	Per 1,000 Gals.
First 3,000	30¢
Next 5,000	25¢
" 12,000	20¢
" 80,000	15¢
" 100,000	10¢
Over 200,000	7¢

Minimum, 90¢ per month.

Corning, 2,200.

Gals. per Quarter	Per 1,000 Gals.
First 10,000	40¢
10,000 to 20,000	35¢
20,000 to 30,000	30¢
30,000 to 40,000	25¢
40,000 and over	20¢

Minimum, $1.50 per quarter.

Council Bluffs, 40,000.

Gals. per Day	Per 1,000 Gals.
100 to 500	35¢
500 to 1,000	30¢
1,000 to 2,000	25¢
2,000 to 4,000	20¢
4,000 to 15,000	15¢
Gals. per Month	
450,000 to 500,000	12½¢

Excess over 500,000 gals. per month at rate of 10¢ per 1,000 gallons, except where the consumption exceeds 1,000,000 gallons per month; then the first 18,750,000 shall be billed at a rate of 10¢ per 1,000 gallons and all excess at 8¢ per 1,000 gallons.

Minimum, 50¢ per month on all meters owned by consumers, allowing 1,425 gallons of water; 75¢ on all meters owned by the Department, allowing 2,125 gallons.

Creston, 9,000.

Gals. per Day	Per 1,000 Gals.
100 to 500	35¢
500 to 1,000	30¢
1,000 to 2,000	25¢
2,000 to 4,000	20¢
Over 4,000	15¢

Minimum, $10.00 per year.

Des Moines, 148,000.

Gals. per Day	Per 1,000 Gals.
First 1,000	30¢
Next 4,000	20¢
" 200,000	10¢
" 295,000	8¢
Over 500,000	7¢

Minimum, $1.00 per quarter.

Service charge, 50¢ per quarter for each ½" or smaller meter, and $1.00 per quarter for larger meters.

Dubuque, 46,969.

Cu. Ft. per Month	Per 100 Cu. Ft.
First 1,000	25¢
Next 1,000	20¢
" 1,000	15¢
" 7,000	13¢
" 5,000	12¢
" 10,000	11¢
" 25,000	10¢
" 50,000	8¢
" 100,000	7¢
Balance	6¢

Minimum, 75¢ per month.

Dyersville, 2,000.

Gals. per Month	Per 1,000 Gals.
First 20,000	25¢
Next 20,000	20¢
" 40,000	18¢
" 50,000	16¢
" 870,000	15¢
Over 1,000,000	14¢

Minimum, 75¢ per month.

Forest City, 2,100.

Gals. per Month	Per 1,000 Gals.
First 15,000	40¢
Next 10,000	35¢
" 10,000	30¢
" 15,000	25¢
" 50,000	20¢
" 100,000	15¢
" 200,000	12¢
Over	10¢

10% added after the 25th of the month.

Fort Dodge, 25,000.

Gals. per Quarter	
First 2,000	90¢
	Per 1,000 Gals.
Next 3,000	45¢
" 5,000	35¢
" 10,000	30¢
" 10,000	25¢
" 20,000	20¢
" 20,000	15¢
" 30,000	12¢
" 100,000	11¢
Over 200,000	10¢

Lehigh, 1,200.

Gals. per Quarter	Per 1,000 Gals.
First 1,000	50¢
Next 1,000	40¢
Over 2,000	35¢

Minimum, 25c per month.

Manchester, 3,455.

Gals. per Quarter	Per 1,000 Gals.
First 10,000	35¢
Next 10,000	30¢
" 10,000	25¢
" 10,000	20¢
" 10,000	15¢
Over 50,000	10¢

Discount of 25¢ on all bills over $2.00 paid before the first of the month after bill is due.

Minimum, $2.00 per quarter.

Marshalltown, 18,000.

Cu. Ft. per Quarter	Per 100 Cu. Ft.
First 500	28¢
Next 1,000	21¢
" 2,500	10¢
" 12,000	8¢
" 384,000	7¢
Additional	4.875¢

Minimum, $1.25 per quarter, allowing 450 gallons.

IOWA (Continued)

Missouri Valley, 4,283.

Gals. per Day	Per 1,000 Gals.
Less than 100	40¢
100 to 250	35¢
250 to 500	30¢
500 to 1,000	25¢
1,000 to 5,000	20¢
5,000 to 10,000	15¢
Over 10,000	12½¢

Minimum, $1.25 per quarter.

Onawa, 2,400.

Gals. per Quarter	Per 1,000 Gals.
1,000 to 5,000	50¢
5,000 to 15,000	30¢
15,000 to 30,000	20¢
30,000 to 50,000	15¢
50,000 to 75,000	12½¢
Over 75,000	10¢

Minimum, $1.50 per quarter.

Oskaloosa, 10,000.

Gals. per Month	Per 1,000 Gals.
15,000 or less	60¢
15,000 to 30,000	45¢
30,000 to 150,000	30¢
Over 150,000	Special

Minimum, 75¢ per month.
If water plant owns meter, 25¢ meter rental will be charged.

Traer, 1,400.

Gals. per Month	Per 1,000 Gals.
First 1,000	48¢
Next 2,000	36¢
" 5,000	24¢
Over 8,000	18¢

Washington, 1,278.

Gals. per Quarter	Per 1,000 Gals.
First 15,000	40¢
Next 30,000	30¢
" 120,000	20¢
Over	15¢

Minimum, $2.00 per quarter.

KANSAS

Bonner Springs, 2,000.

Gals. per Month	Per 1,000 Gals.
First 10,000	40¢
Next 10,000	35¢
" 10,000	30¢
" 10,000	25¢
Balance	20¢

Minimum, $1.00 per month for 1,700 gallons.

Cherokee, 1,500.

Gals. per Month	Per 1,000 Gals.
1,000 or less	50¢
1,000 to 2,000	45¢
2,000 to 3,000	40¢
3,000 to 5,000	35¢
5,000 to 10,000	30¢
10,000 to 50,000	25¢
50,000 to 100,000	20¢
100,000 to 500,000	15¢
500,000 to 1,000,000	12¢

Coffeyville, 20,000.

Gals. per Month	Per 1,000 Gals.
First 20,000	25¢
Next 80,000	20¢
" 900,000	15¢
" 1,000,000	10¢
Additional	4½¢

Minimum Charge

Size of Meter	Per Month
⅝"	$1.00
¾"	1.00
1"	2.00
1¼"	2.00
1½"	3.00
2"	5.00
3"	6.00
4"	9.00
6"	12.00

Colby, 2,000.

Gals. per Month	Per 1,000 Gals.
First 4,000	22½¢
Next 6,000	20¢
" 10,000	18¢
" 10,000	16¢
" 10,000	14¢
" 10,000	12¢
Over 50,000	10¢

Minimum, 90¢ per month.
Meter rent, 25¢ per month.
25% discount on rates for months of June to September, inclusive.
10% penalty on all bills not paid before 10th of month.

El Dorado, 15,000.

Rates for Treated Water

Gals. per Month	Per 1,000 Gals.
First 10,000	30¢
Next 20,000	25¢
" 30,000	20¢
" 40,000	15¢
Over 100,000	10¢

Rates for Raw or Untreated Water

First 500,000	9¢
Next 1,000,000	8¢
" 1,500,000	7¢
" 2,000,000	6¢
Over 5,000,000	5¢

Erie, 1,500.

Gals. per Month	Per 1,000 Gals.
First 2,000	50¢
Next 3,000	30¢
Over 5,000	20¢

Special rate for consumers of over 50,000 gallons per month.

Goodland, 3,600.

Gals. per Day	Per 1,000 Gals.
1 to 500	30¢
500 to 1,000	27½¢
1,000 to 2,500	25¢
1,500 to 2,000	22½¢
2,000 or more	20¢
Rock Island R. R.	16¢

Minimum, $1.00.

Horton, 4,000.

Gals. per Month	Per 1,000 Gals.
First 10,000	50¢
Next 10,000	40¢
" 30,000	30¢
" 50,000	20¢
Over 100,000	By contract

Minimum, $1.00 per month.

Independence, 15,000

Gals. per Month	Per 1,000 Gals.	Total Bill
First 500		$0.50
Next 4,500	30¢	1.85
" 5,000	25¢	3.10
" 10,000	20¢	5.10
" 30,000	15¢	9.60
" 50,000	12¢	15.60
" 400,000	10¢	55.60
" 500,000	9¢	100.60
Over 1,000,000	8¢	

Junction City, 7,200.

Cu. Ft. per Quarter	Per 100 Cu. Ft.
Up to 6,000	18¾¢
6,000 to 12,000	16⅔¢
12,000 to 60,000	14¢
60,000 to 120,000	11¾¢
120,000 to 240,000	9½¢
240,000 to 600,000	7½¢
Over 600,000	6¢

Minimum, 75¢ per month.

Kansas City, 130,000.

Cu. Ft. per Month	Per 100 Cu. Ft.	Total Bill
First 4,000	25¢	$10.00
Next 6,000	20¢	22.00
" 10,000	15¢	37.00
" 30,000	12¢	73.30
" 50,000	9¢	118.00
" 400,000	7¢	398.00
Over 600,000	6¢	

Minimum Charge

Size of Meter	Per Month
⅝"	$1.00
¾"	1.40
1"	2.75
1½"	5.50
2"	9.75
3"	21.00
4"	36.00
6"	85.00
8"	150.00
10"	230.00
12"	330.00

Levenworth, 22,500.

Gals.	Per 1,000 Gals.	Total Bill
1,534 (minimum)	32¢	$0.50
First 9,000	30¢	2.70
Next 9,000	28¢	5.22
" 18,000	26¢	9.90
" 36,000	24¢	18.54
" 72,000	22¢	34.38
" 144,000	20¢	63.18
" 288,000	18¢	115.02
" 576,000	16¢	207.18
" 1,152,000	14¢	368.46
" 2,304,000	12¢	644.94
" 4,608,000	10¢	1,105.74
" 9,216,000	8¢	1,843.02
" 18,432,000	7½¢	

Lindsborg, 2,086.

Gals. per Month	
First 2,000 (minimum)	75¢
	Per 1,000 Gals.
Next 4,000	20¢
" 4,000	15¢
" 10,000	10¢
Over 20,000	8¢

Marion, 1,937.

Gals. per Month	Per 1,000 Gals.
First 10,000	25¢
Next 10,000	20¢
" 10,000	15¢
Over 30,000	12¢

Minimum, $1.00 per month.

Norton, 2,621.

Cu. Ft. per Quarter	
First 750 (minimum)	$3.00
	Per 1,000 Cu. Ft.
Next 2,000	$1.80
" 1,300	1.60
" 6,700	1.30
" 30,000	1.15
Over 40,000 over min.	1.00

Osage City, 3,000.

Gals. per Month	Per 1,000 Gals.
First 1,000	62¢
Next 1,000	50¢
" 3,000	40¢
" 5,000	38¢
" 5,000	36¢
" 5,000	34¢
" 5,000	31¢
" 5,000	27¢
" 5,000	23¢
" 5,000	19¢
" 600,000	15¢
" 100,000	14¢
" 300,000	13¢
" 500,000	12¢
Over 1,000,000	12¢

Minimum, 60¢ per month.

Parsons, 18,000.

Gals. per Day	Per 1,000 Gals.
1,000 or less	40¢
1,000 to 2,500	35¢
2,500 to 5,000	30¢
5,000 to 10,000	27¢
10,000 to 25,000	24¢
25,000 to 50,000	20¢
50,000 to 100,000	17¢
Over 100,000	13½¢

Pittsburg, 20,000.

Gals. per Month	Per 1,000 Gals
First 100,000	25¢
Next 50,000	22¢
" 150,000	19¢
" 150,000	16¢
Over 450,000	13¢

Minimum, 50¢ per month.

KENTUCKY

Ashland, 30,000.

Gals. per Month	Per 1,000 Gals.
First 10,000	40¢
Next 90,000	30¢
" 200,000	25¢
" 400,000	20¢
" 300,000	15¢
Over	10¢

Minimum Charges

Size of Meter	Per Month Gross	Per Month Net	Allowance (Gallons)
⅝"	$1.50	$1.00	2,000
¾"	2.00	1.75	5,000
1"	3.20	2.80	8,000
1½"	4.30	3.75	11,000
2"	5.80	5.00	16,000
3"	11.80	10.00	36,000
4"	32.25	27.00	105,000
6"	73.50	60.00	270,000

Catlettsburg, 17,000 (includes Kenova and Ceredo, W. Va.)

Gals. per Month	Per 1,000 Gals.
First 10,000	45¢
Next 40,000	40¢
" 50,000	35¢
" 50,000	30¢
" 100,000	25¢
" 250,000	17½¢
Over 500,000	10¢

Covington, 90,000 (includes also Ludlow, Ft. Mitchel, Western Hills, Ft. Thomas, part of Bellview and Dayton).

Cu. Ft. per Quarter	
First 1,111	$8.00 a year
	Per 100 Cu. Ft.
Next 8,889	18¢
10,000 to 20,000	16¢
20,000 to 30,000	14¢
30,000 to 40,000	12¢
40,000 to 4,000,000	10¢
Over 4,000,000	9½¢

Danville, 7,500.

Cu. Ft. per Month	Per 100 Cu. Ft.
200 or less	50¢
200 to 500	40¢
500 to 1,000	34¢
1,000 to 2,000	29¢
2,000 to 3,000	24¢
3,000 to 4,000	19¢
Over 4,000	12½¢

Minimum Charges

Size of Meter	Per Month
⅝"	$0.65
¾"	1.00
1"	1.50

Frankfort, 9,805.

Cu. Ft. per Quarter	
666 or less (minimum)	$1.38
	Per 1,000 Cu. Ft.
1,166 or less	2.12
1,666 " "	1.94
2,166 " "	1.72
2,833 " "	1.48
3,500 " "	1.25
5,500 " "	1.10
7,500 " "	1.03
11,666 " "	.97
16,666 " "	.89
25,000 " "	.82
33,333 " "	.78
43,333 " "	.75
56,666 " "	.70
70,000 " "	.66
86,666 " "	.61½
100,000 " "	.58
116,666 " "	.54½
Over 116,666	.54½

(To be continued in the September issue)

THE TAXPAYER'S DOLLAR

A Monthly Department of Budgeting, Assessment, Taxation, Accounting and Other Phases of Municipal Finance

Conducted by A. E. BUCK, *National Institute of Public Administration, New York*

Capital Planning Recommended for Toronto and Lowell

THE Toronto [Canada] Bureau of Municipal Research, in discussing the 1929 city budget, urges the adoption of a long-time capital plan for the city government. It argues that capital expenditures are reflected in current expenditures through the annual debt charges. It goes on to say that the annual debt charges are a considerable part of the total current budget. Hence, one way of controlling current expenditures is to control the cost of capital improvements. It believes that "city planning offers the best method of attaining this end, in that it means the most economical use of capital funds in the production of necessary improvements. . . . To operate without a long-term plan of capital improvements and financing is to throw away money."

The Finance Commission of Lowell, Mass., a body that is appointed by the Governor of the state, has recommended a capital budget for the city government in its third annual report. In reality, this budget is to be a program of improvements extending over five or ten years. Such a program would contemplate necessary additions to school plant, street development, extension of fire-fighting equipment, surface drainage problems, provision for public buildings and widening of streets. It would set forth the various projects in the order of their importance and show how they were to be financed.

The Commission showed some concern over the local tax situation and the depression of the cotton textile industry. It stated that "the estimated receipts have been set so high as to bring about grave danger of a deficit." It went on to say that "the city having lost, at a conservative estimate, at least $15,000,000 in taxable mill property, the total reduction of valuations in two years of less than $10,000,000 leaves the tax situation still acute." All of which, the Commission feels, points to the necessity of having a long-term program for permanent improvements.

Modern Accounting System for Pittsburgh

HENRY OLIVER EVANS, City Comptroller of Pittsburgh, Pa., in a recent issue of *Greater Pittsburgh*, describe the new accounting system installed in his office. "To cure the alleged deficiencies of the office the latest methods, copied from the largest and most efficient private corporations," he says, "have been installed.

"The first fruits of these changes and improvements are the publication and distribution of the monthly statement of appropriations and bond accounts of the city, comparable in general to a trial balance with additional detailed information not ordinarily found in the trial balance. This statement is the first one published in the 165 years of the city's history. . . . Along with this innovation go, as in private business, the latest improvements in tools by the installation of typewriting, billing and bookkeeping machines and other modern office appliances. . . . As a result, the comptroller's office finds itself in possession of employees who, without extra cost, have been put at making a comprehensive, detailed inventory and appraisal of all property, real and personal, of the city. It is hoped that this will result in revenue through sales of unnecessary property. It will also be the foundation of a modern storehouse system which, in addition to cutting down inventories of supplies, now duplicated, should stop the stealing and loss which always comes from lack of central responsibility and control."

Fall River's Bonded Debt

THE Taxpayer's Association of Fall River, Mass., has issued an interesting bulletin on the bonded debt of that city. It appears that the city government has been issuing bonds in comparatively large amounts during recent years, especially since 1920. In 1920 the city's bonded debt was $4,800,000 in round figures, and in 1926 it was $10,200,000. Since 1920, $9,700,000 of bonds have matured. The amortization charges, to say nothing of the interest, have been a large factor in the increased tax burden of the city. In discussing the city's debt policy, the bulletin says:

"Just how much of the present debt costs can be justified is, of course, unanswerable, for the bonds the city is paying today were issued to acquire public improvements in years past, extending as far back as 1899. Whether all of the improvements acquired were needed may be debatable. Some no doubt could have been deferred or completely eliminated. But a large number of the improvements were needed and are being used today by the present generation of taxpayers, who are paying a part of the cost.

"The object of issuing bonds for permanent improvements is to spread the cost over the period of use of the improvement, rather than placing the entire cost upon a single group of taxpayers. In this way all the persons benefited share in meeting the cost. The difficulty has been that city officials have often been little concerned with the need for the projected improvement and have willingly issued bonds for the undertaking because credit for the improvement rested entirely with the officials advocating the work, while a major portion of the cost was left to later administrations. The ultimate cost to the community over a period of years too often has received scant consideration. . . .

"A number of remedies that would give some relief in the future are suggested by the city's present debt position. When voting bonds, little thought has been given to the ultimate cost to the taxpayers during the entire life of the bonds. In the future, the ultimate cost of the improvement, including interest charges on the bonds as well as payments of the principal, should be considered before undertaking any project. Bonds should not be voted until definite plans for spending the money are worked out and the total cost is accurately estimated. Finally, planning improvements to be undertaken over a period of years offers further opportunities for saving, by giving precedence to the most necessary projects and by eliminating those that are not needed or from which only small benefit is received in return for the money expended. Such arrangement of the city's improvement needs, known as a capital improvement program or improvement budget, applies principles of budgeting and planning to projects financed from bond funds, just as the yearly operating budget determines what tax money shall be used to carry on the work of the city departments."

Responsibility of Bidders for City Contracts

PHILADELPHIA has recently passed an ordinance requiring contractors to show that they possess experience, equipment, and capital before presenting their bids for contracts to do public works construction. With reference to this ordinance, the Philadelphia Bureau of Municipal Research says:

"The purpose of the ordinance in providing for the elimination of those not qualified before the bids are opened is to relieve the awarding official of the responsibility of rejecting a low bid of an irresponsible bidder and the consequent importunities of the low bidder and his backers. It is true that the awarding official has the right to reject the lowest bid if the bidder is irresponsible, but in practice such rejection is difficult. Too often the awarding official faces the alternative of awarding to an irresponsible bidder or of rejecting the low bidder and having his judgment and motives severely

criticised by the public and the press. It is better, therefore, to decide the question of responsibility before the situation is complicated by knowledge of prices bid.

"The new ordinance should prevent the delays that frequently result from injunctions when a low bid is rejected. It should save the irresponsible bidder the time and cost of preparing a useless bid, and the embarrassment and injury of a rejection. It should help to assure the qualified contractor of intelligent and responsible competition, freed from the inroads of the ignorant and reckless. . . .

"While prequalification has for some time past been practiced in several states on highway work, few cities have yet adopted it. The results will therefore be watched with great interest."

Suggestions on the Assessment of Local Improvements in Rochester, N. Y.

THE Rochester Bureau of Municipal Research has recently issued a report containing certain suggestions with respect to the assessment of local improvements in that city. The report presents plans for the relief of corner lots from excessive assessments; for local improvement assessment allowing for corner lots, irregularly shaped lots, and deep or shallow lots; and for assessing the cost of sewers on a flat-fee basis. A series of examples are also appended showing the computation of frontages for local improvement assessments.

Municipal Retirement Systems

ACCORDING to a recent survey made by the Bureau of Labor Statistics of the United States Department of Labor, retirement systems of a comprehensive character for municipal employees are now being operated by nine large American cities. Because of the growing importance of the fiscal side of city pension systems, the introductory part of this survey will bear repetition here:

"As a generalization, it is probably safe to say that there is not a city in the United States which does not have a retirement system for at least some of its employees. Retirement systems for firemen and policemen are practically universal; retirement systems for teachers are common; and in many cities it will be found that there are several other schemes, each covering a special group.

"Within recent years, however, various cities have concluded that it is fairer and more effective to provide for the retirement of all city employees, and have established retirement systems of varying degrees of inclusiveness. Among the cities having a population of 400,000 or over there are nine with inclusive systems. These, with the date on which the comprehensive systems went into effect, are as follows: Baltimore, 1926; Boston, 1923; Chicago, 1922; Detroit, 1923; Minneapolis, 1922; New York City, 1920; Philadelphia, 1915; Pittsburgh, 1915; San Francisco, 1922.

"Ordinarily these systems are organized under state laws applying to all cities of a given class, in addition to which there may or may not be a city ordinance authorizing the establishment of a system under the terms of the law.

"A common method when introducing a municipal retirement system is to make it apply to all employees not covered by some existing pension scheme. The policemen almost universally have schemes of their own, which they often prefer to maintain, so that it is rather unusual to find them included in a general scheme. Teachers also frequently have their own established plans.

"In some cities it is optional with such employees to come into the general system or to remain under their own, so that there is considerable variation in the inclusiveness of the municipal systems. The Boston plan includes both policemen and firemen, and the Baltimore plan covers firemen, but elsewhere these two groups are outside of the general system. In Boston, Baltimore, and San Francisco the teachers have elected to come under the city plan, but in the other cities they either have their own retirement scheme or are included in a state system.

"The tendency is to make the municipal system as inclusive as possible, with the idea of substantiating one efficient and well-managed plan for a number of small schemes covering limited groups and offering widely varying benefits to the different classes of city employees."

"Gasoline Taxes Running Wild"

IN an editorial with the above caption, the *Engineering News-Record* for July 4, 1929, points to the possibility of "killing the goose that lays the golden egg" so far as the gasoline taxes are concerned. It discusses the present situation in some of the states as follows:

"A record in gasoline taxation appears to have been made in Florida. The Legislature on June 20 increased its five-cent tax to six cents, and on June 21 Governor Carlton put his signature to the act. Florida has now a gasoline tax as high as has South Carolina, which recently boosted its rate one cent a gallon. In Florida, however, the additional cent is not for road improvement, but for the support of 'public schools and higher institutions of learning.' By the new Florida gas tax law also, the five-cent road tax is to be divided by an 'administrative board' between the state and the counties, which are to use their share in 'paying off their bonded indebtedness of nearly $200,000,000.' Florida has gone ahead, even of Alabama, in which three counties by act of Legislature have been given power to add a three-cent county tax to the four-cent state tax. The situation is menacing. If the state legislatures continue to pile additions onto gasoline taxes and to divert the receipts to bolster up every state and county activity that finds itself impoverished, there will follow an aftermath of revolt and retrenchment which will be hazardous to progressive highway improvement. As a special impost for road construction and upkeep, the gasoline tax has been extraordinarily favored by the people and passively accepted by the trade interests subjected by it to a heavy sales-tax burden. There are indications that endurance is being too severely tried for further patience, and state highway authorities should take positive action to influence wise legislative policies."

Future Development of Budgeting as Seen by the Detroit Bureau

THE Detroit Bureau of Governmental Research has recently suggested that when city budgetary procedure has been properly developed, it will show something in the nature of the following:

"1. The separate public services performed will be clearly indicated and appropriations will be made to each service. In this way the citizen will know exactly what the city is doing for him and what it is costing.

"2. Each service will indicate what it would cost to do a 100 per cent job, and what part of that job it is doing now. Perhaps fewer camels would get their heads under the financial tent if the complete size of small beginnings were known.

"3. Requests will be phrased in amounts of work to be done as well as dollars to be spent—i.e., so many miles of streets to be cleaned, nursing visits to be made, etc.

"4. In addition to financial audits to insure honesty, there will be operation audits to measure the effectiveness of expenditures. The one insures that additions are O. K.; that vouchers check with bills; that payrolls are honest; that dotted lines are properly signed on. The other will deal with the public's right to benefit in proportion to outlay.

"5. With the estimates will go the unit costs of work done and the estimated unit cost of work proposed—comparable measures of efficiency."

This all sounds very good. But it is not going to be as easily accomplished as would appear on the face of it. In fact, there may be some doubts as to the advisability of certain of these things. While it is helpful to show the costs of public services performed as a matter of information for councilmen and citizens, it does not seem desirable to make appropriations to services rather than to organization units. Only by tying up the appropriations with the organization units can responsibility for administration be definitely fixed. A clear line should be drawn between the presentation of information in the budget document and the form of the appropriations. Information may, to advantage, be presented in the budget document on the basis of "services" or of "amounts of work done," but it does not follow that appropriations should be made on the same basis. In fact, the trend of current practice would indicate that appropriations should be made in lump-sum amounts to organization units, provided certain measures of budgetary control have been instituted. The extent to which "operation audits" may be effectively carried out is still a mooted question. That such audits are good things seems apparent, but their full realization is still beset with many practical difficulties. The matter of unit costs as "comparable measures of efficiency" must await the development of governmental cost accounting, now merely in its infancy.

Coding, Vouchering and Centralized Purchasing as Related to a Mechanical Accounting System

The Fifth and Last of a Series of Articles on Mechanical Budgetary Control Accounting, for Municipalities and Other Public Bodies, Which Began in April

By GEORGE C. SCOTT, C.P.A.
CHARLOTTE, N. C.

Coding and Vouchering

AN organized method of coding and vouchering the transactions that necessarily enter into the books of accounts is essential for successful maintenance of the accounts.

The invention of the F.C.O. symbol code and the block voucher in connection with the use of machinery has successfully simplified the entire work of account keeping.

The bases of classification in the F.C.O. symbol code are function, character and object. Serial numbers are used in symbolizing the functions, letters are used for character, and arithmetical numbers for objects. This method preserves the three components in every transaction—function, character and object—in the system of accounts.

The vouchering of all transactions, disbursements, receipts and journal entries is simplified by the use of the block voucher form. The block posting voucher for disbursements consists of three distinct parts, and after it is written up, there are four parts. The first part is the bank check or the warrant on the treasurer, which provides for a perforated lip for recording the explanation. The second part is of the same width as the first part, but twice or more as long or deep, so that when folded in the center it becomes a jacket for holding the supporting papers. The upper half of the second part is for recording the copy of the first part; the lower half is divided into three blocks. The first block is for recording the names and amounts of the accounts in the subsidiary ledgers to which the transaction is posted. The second block is the budget block, for recording the accounts in the budget ledger to which the transaction affects. The third block is the proprietary ledger or general control ledger block for recording the accounts to which the transaction is to be posted.

The third part of the voucher is an exact duplicate of the second part, except that it is of different color and is perforated across the center for detaching when written up. The upper half, which has a carbon copy of the bank check or warrant and the explanation, is for the index files; the lower half, containing a record of all accounts the transaction affects, is for the machine operator to post to the various accounts as shown on the voucher.

The second part, which is the part that forms a jacket for holding the supporting papers, such as the invoice, copy of purchase order, delivery receipt, and any other documents pertaining thereto, is filed numerically. This part of the voucher, which bears the approval, is very complete. It shows the copy of the check or warrant, it shows the entire accounts, both detail and control, affected by the transaction, and it contains all supporting papers.

This form of voucher eliminates the duplicate bookkeeping work that characterizes the old methods. It likewise eliminates the various subsidiary records, registers and bound books necessary in the old cash-book systems, and at the same time it constitutes an unusual record representing an interesting advance in the art and science of bookkeeping.

An illustration may be given showing the comparative clerical operations under the old methods and the new mechanical system, in the following tabulation:

		Under the Pen-kept Cash-Book Systems	Under the Mechanical Bookkeeping Methods
1.	Preparation of voucher	1	1
2.	Posting by automatic posting machine direct to accounts		1
3.	Entering voucher on register	1	
4.	Posting from voucher record	1	
5.	Adding and balancing voucher register	1	
6.	Journalizing voucher register totals	1	
7.	Posting monthly totals voucher register	1	
8.	Entering warrant on cash book or treasurer's record	1	
9.	Balancing cash book	1	
10.	Posting cash book	1	
11.	Entering or journalizing for funds	1	
12.	Posting to fund accounts	1	
13.	Entering or posting to budget accounts	1	
14.	Adding and balancing budget accounts	1	
15.	Adding and balancing general ledger	1	
16.	Drawing off trial balances	1	
	Total operations	15	2

The above tabulation may not include all of the operations for keeping the old cash-book systems, but it represents the principal operations necessary to keep complete accounts.

Under the mechanical system there are only two major bookkeeping operations: (a) preparation of voucher; (b) posting the voucher.

The tabulation shows fifteen different clerical operations under the old cash-book system. The tabulation illustrates the economy, simplicity and promptness of information, as the work of posting the voucher automatically closes the books, and the machine eliminates the mental work of adding, subtracting and balancing.

Centralized Purchasing

A description of the mechanical system of accounting would not be complete without reference to the important office of centralized purchasing. A properly organized purchasing office is an important link in the chain of budgetry control and it possesses the power to incur liabilities within the limitations of the budget authorizations and is centralized for purposes of efficiency and control.

The entire purchases for all departments are made from requisitions originating with the departments and activities. These requisitions must show all information as to what is desired, and must be properly classified under the F.C.O. symbol code. The purchasing agent audits the classification, and the file passes through the hands of the auditor, voucher clerk and posting clerk, the process of which makes an unusual check as to the correctness of classification.

Before the purchase order is delivered to the vender, it must be approved by the auditor or comptroller, as to there being an unencumbered balance of appropriation to meet the liability, which avoids over-commitments.

The purchase orders consist of five different copies; the first copy is for the vendor, the second copy for the department of accounts, the third copy for the requisitioner, and the fourth and fifth copies are retained by the purchasing agent, who files one copy numerically and the other alphabetically.

A well-organized purchasing office contains what is known as the commodity file. The commodity file consists of

cards, one card for each object of purchase, on which are recorded the purchases of that commodity, showing date, from whom, quantity and price. In one case a city purchasing agent saved more than $600 in one year in the purchase of janitor's supplies over the old methods. The records disclosed the quantity of each of the supplies for janitorial purposes consumed in a year, therefore the purchases were made in annual quantities at prices that produced a saving of more than $600.

All invoices are sent to the purchasing agent for audit and to complete his file for delivery to the auditor and vouchering clerk. When he receives the invoice and also the receiving notice showing the delivery of the purchase, and his audit discloses that the delivery was in accordance with the purchase, the file is complete and is delivered to the auditor, and after the latter's examination is immediately delivered to the voucher clerk and is vouchered for payment. The entire file becomes supporting papers to the posting voucher that is prepared and is fastened in the second part of the posting voucher, which is a jacket for holding such documents.

This method of handling purchases provides for daily payment, and purchases are made for cash. No monthly statements from vendors are required or needed, as all purchases are, in the regular process, paid day by day, except in certain cases where a large number of purchases are made from certain vendors. In some cases purchase orders go out to certain vendors daily, invoices are received from them daily, and in such cases the invoices may be accumulated for a day or two or longer so as to avoid writing so many vouchers to the same concern.

The proper methods of the purchasing office provide for a system of cash discounts. By buying for cash, the purchasing agent is able to drive favorable bargains, both in prices and cash discounts. Usually the total cash discounts aggregate more than the entire expenses of the purchasing office.

EDITORIAL NOTE.—The subject dealt with in the foregoing article and the series of which it is a part, is more extensively covered in a volume by the same author, which is in course of preparation.

Salvage—Now a Primary Function of the Fire Department

A BODY of trained men, through efficient salvage work, are often able to save more of the country's resources at a single fire than they could produce in a lifetime of labor, according to Chief Frank C. McAuliffe of the Chicago Fire Insurance Patrols.

Notwithstanding this fact, fire departments in general have been reluctant to accept the theory of salvage and to give it its rightful place in actual practice, Chief McAuliffe added recently during his address before the National Fire Waste Council at Washington. He voiced the opinion that the reason for this is primarily the accepted belief that such work is for the benefit of insurance companies and that consequently the necessary expense for the installation and maintenance of salvage equipment should devolve upon the companies.

Salvage a Problem of Protection

Although admitting that both fire departments and salvage programs originally were organized by insurance concerns for the protection of their interests at fires, Chief McAuliffe finds little justification for the foregoing argument at the present time. In this connection he says:

"Fire departments are organized for the protection of life and property. They employ every possible means in the performance of their duties. If salvage operations will reduce losses, then it is just as reasonable to expect insurance companies to operate 'hook and ladder companies' as to expect them to maintain salvage equipment.

"It is true that all cities are not large enough to justify the installation of a salvage company. However, every fire department should carry salvage equipment and train its men in the principles of salvage. A great many chiefs contend that they require their entire force to extinguish fires and cannot spare any of their men to perform salvage work. While that may be true at some fires, on the other hand, a few men can be spared at a large majority of fires, particularly after apparatus and equipment has been placed in service. If an effort is made, much good will be accomplished. This has been demonstrated by the work done by progressive fire departments in some of our smaller cities and towns."

Fire chiefs who have installed or contemplate installing means for salvage should make a study of the work as practiced by the corps now in existence and be guided by them in their selection of equipment, Chief McAuliffe contends. The speaker continued:

Opportunities for Salvage

"A misdirected stream in the interior of a building often creates more damage than the fire itself. The reckless smashing of doors and windows, the destruction of furnishings and stock in tracing fire, the unnecessary or unworkmanlike opening of roofs and skylights, all present opportunities for salvage.

"It would be impossible in this address to mention all the various opportunities for salvage that present themselves at fires. Officers should have a knowledge of the different kinds of merchandise and equipment, and to what extent they are affected by fire, smoke and water, and what precautions must be taken to guard against further damage. This knowledge can be used to a material advantage at practically every fire.

"Inspection bureaus should have a knowledge of the conditions which prevent efficient salvage work at fires, and make an effort to correct such conditions in their inspection work.

"Improperly constructed wall cases and shelves are perhaps the most frequent cause of unsatisfactory salvage. They should be constructed with a wire net backing, two inches from the wall, and a metal flashing on the top, or sufficient space above to allow a cover to be drawn over the case.

"Stock should not be piled on tops of cases. Additional shelves should be provided for that purpose.

"The nature of the stock and general conditions as to the feasibility of skidding should receive the attention of the inspector in seeking methods of protection against loss that may occur from water on the floors. Scuppers, basement drains and catch-basins should be clear and unobstructed.

Difficulties Confronting Salvagers

"Certain classes of occupancy, due to the nature of the stock, present difficult conditions for efficient coverage. Crockery, glassware, lamps, vases, statuary, antiques and similar fragile merchandise are difficult to cover without breakage, unless special provisions are made to take care of such objects. A pipe rack carried above the center of the tables can be used to hang articles on display and by salvage men in their cover work.

"The average business man has no knowledge of salvage. His stock and fixtures are therefore arranged regardless of the serious consequences caused by water, in the event of fire or accidental leakage of plumbing or sprinkler equipments. Should they understand these conditions, they could arrange their stock and fixtures in such a manner that salvage men could effectively protect them against water damage should the need arise.

"A fire department that practices salvage adds finesse to its operation and soon takes a pride in extinguishing fires with a minimum of damage. The premises are left in a neat and orderly manner and as a result the good-will and support of the

citizens served is gained and the personal satisfaction which comes with work well done.

"The National Fire Waste Council should lend their far-reaching influence to the propagation of 'Salvage At and After Fires,' so that every phase of fire-waste prevention will be given consideration in their splendid fight against the shameful fire losses of our country."

Record of Chicago Patrol

Just how much a modern salvage corps such as the Chicago Fire Insurance Patrol can actually accomplish in the preservation of property at fires was outlined a few weeks ago by Chief McAuliffe in *Chicago Commerce*.

During 1928, the nine patrols comprising this unit responded to 13,501 alarms, traveled 36,420 miles and spread 16,765 covers over property subjected to water damage. The 160 men in this service also spread 1,444 covers over roofs to protect property exposed to further damage from the elements. There were 241 fires extinguished with hand pumps, chemicals and hose lines; 4,119 hours of company fire duty were performed, and 5,156 hours of fire watch duty involving the guarding of premises from additional loss. Sprinkler equipments placed in service numbered 775 and officers made 436 building inspections. During the year, the Patrol also was honorably mentioned for rescue work in fire department general orders on two occasions and administered first aid to 79 persons burned or otherwise injured at fires.

Duties of the Present Patrol

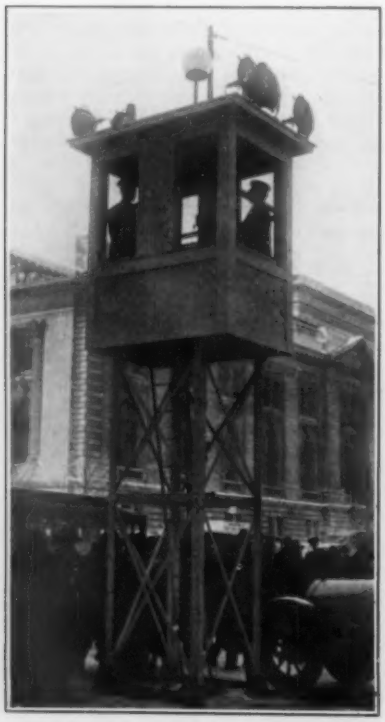
The Chicago Fire Insurance Patrol dates back to 1874, when it was organized under state charter imposing upon it the duty of entering burning buildings for the purpose of salvaging property. Its present routine work at fires consists in getting property off the floors, covering property with large tarpaulins, draining floors which would otherwise be flooded, repairing holes in a roof to protect property from inclement weather, and cleaning property after a fire.

The Patrol operates with and as a part of the City Fire Department, although it is under the immediate direction of its own Chief. It is controlled and financed by the Chicago Board of Underwriters, and the revenue for its maintenance is furnished by the fire insurance companies transacting business in Chicago.

Nine motorized patrols now operate in that city, and the patrol station at Hill and Orleans Streets has, in addition to the usual space for apparatus and the quarters for the men, a modern repair shop and a drill school for training both officers and men in salvage practice. This is reputed to be the first school of its kind in the country and contains a complete wet and dry sprinkler system fully supervised, and all of the alarm transmission instruments as well. An automatic fire-alarm system is also available for demonstration, while various kinds of private fire protection equipment, such as hand extinguishers, are a part of the school equipment. The patrol companies are instructed by practical demonstrations and drilled in salvage practice under conditions as nearly approximating the actual fire conditions as possible. The course of study includes a series of lectures by experts in methods of scientific fire prevention, control, extinguishment and salvage. A school for watchmen has been established in conjunction.

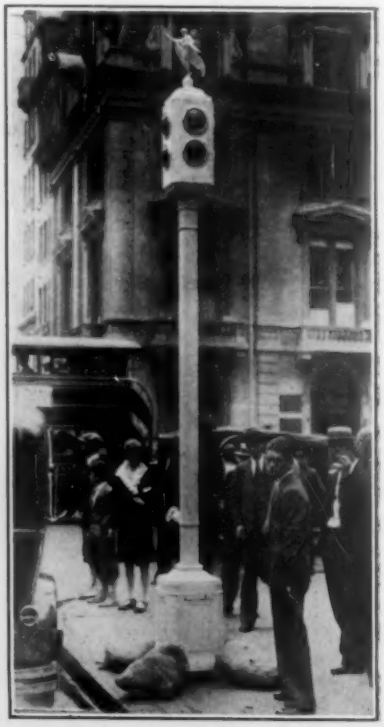
Many chiefs in the surrounding territory have taken advantage of this drill school and have sent their officers to participate in the work. Any person interested will always receive courteous treatment there and, if he desires, will be taught salvage as experienced by the corps in the last 55 years.

Evolution of Traffic Control on Fifth Avenue, New York



1920

1923



1930

Fifth Avenue, New York's famous thoroughfare, is soon to have a new design of traffic light which it is believed will blend harmoniously with the avenue's air of dignity and grace. At the left is one of the old "box" type traffic towers, in operation along Fifth avenue from March, 1920, to December, 1922. In the center is the first of the distinctive bronze towers which were presented to the city by the Fifth Avenue Association and which became the immediate successors to the less pretentious wooden variety. These towers remained on the avenue until a few months ago, when they were dismantled because they occupied too much space and hindered the flow of traffic. At the right is a model of the new lights proposed by Police Commissioner Whalen and approved by the Fifth Avenue Association. These new standards, to be placed one on each corner on alternate sides of the street, will be 12 feet high, with a winged figure on top which, according to the architect, Joseph Freedlander of New York, is symbolic of modern traffic movement and regulation. The present lights, supported by metal arms protruding over the avenue, are only a temporary installation and are not here shown.

THE MONTH IN PUBLIC HEALTH

Conducted by JAMES A. TOBEY, Dr. P. H.

Recognizing Distinguished Public Health Service

A MEDAL for distinguished service in public health is to be awarded in 1929 for the first time. Nominations for this award, to be known as the Sedgwick Memorial Medal, are now being received by a committee of the American Public Health Association which is to select the individual most worthy of the honor. Any person who has made a notable contribution to public health, whether in administration, research, education, technical service, or any other specialty, is eligible for consideration. Since the medal may be conferred at the time of the annual meeting of the American Public Health Association in Minneapolis from September 30 to October 5, 1929, anyone who has a candidate should communicate at once with Professor Homer N. Calver at the headquarters of the Association, 370 Seventh Avenue, New York.

The Sedgwick Memorial Medal has been established in honor of the late Professor William T. Sedgwick of the Massachusetts Institute of Technology. Not only in the minds of all of us who were fortunate enough to have been his pupils, but by the general consensus of opinion, Professor Sedgwick was the greatest sanitarian this country has produced. He served as President of the American Public Health Association, and it is appropriate that a committee of this Association should have raised the necessary funds for this medal, the recipient of which must be a native of one of the countries from which the membership of the Association is recruited, namely, the United States, Canada, Cuba and Mexico.

At the Massachusetts Institute of Technology plans are under way for a new Sedgwick Memorial Laboratory to house adequately the Department of Biology and Public Health of the Institute, which Professor Sedgwick directed so admirably until his death in 1921. Half a million dollars, a comparatively small amount in these days of vast educational endowments, will be needed for the purpose, and a committee of distinguished persons has undertaken to secure this sum.

An award for distinguished service in public health was made on June 21, 1929, when the gold key and the certificate of the Delta Omega Society were presented to the Honorable Herbert Hoover, who had accepted election as an honorary member. This presentation was made at the White House by Lieutenant Colonel Edward G. Huber, National President of this honorary society, and the writer, as Secretary. Surgeon General H. S. Cumming of the United States Public Health Service, another honorary member, was also present. The only other honorary members of Delta Omega are Dr. Charles V. Chapin, of Providence, R. I., and Dr. Frederick F. Russell, of the Rockefeller Foundation's International Health Division.

A State Division of Adult Hygiene

MASSACHUSETTS has been first in many public health measures. This commonwealth established the first state board of health in 1869 and it has often taken the lead in public health work since that time. Once again it has introduced an innovation in public health by creating in the State Department of Public Health a Division of Adult Hygiene. According to Dr. George H. Bigelow, Commissioner of Health, the immediate principal interest of the Division will be cancer, which the Legislature has directed the Department to attempt to control. Other chronic diseases will probably also be taken up. The Director of this new and unique division is Dr. Herbert L. Lombard.

One of the first problems this division might consider is the relation, if any, between cancer and tuberculosis. In a recent striking paper by Pearl, Sutton and Howard in the *London Lancet* for May 25, 1929, are reports of the treatment of a number of cancer patients with tuberculin. While no positive conclusions are given, the results are said to be promising, and further studies are to be carried out. Such investigations will be watched with tremendous interest, for one of the greatest forward steps in medicine will have been taken when a cure for cancer is discovered. Whether this is it or not, cannot yet be stated, or even surmised.

Are Salaries in Public Health Improving?

THERE are several indications that salaries in public health are now better than they used to be. In the *Health Officers' News Letter* of the American Public Health Association for June 30, 1929, W. F. Walker, Dr. P. H., tells us that the average salary paid to health officers in cities of more than 100,000 population in 1923 was $5,000, whereas in 1927 it was $6,200. In cities of from 50,000 to 100,000 there has been a similar increase from $3,404 to $4,570.

A director of a health department who is one of the highest-paid of all city officials is a rarity, but apparently such is the case in at least one municipality. A list of official salaries for Kansas City, Mo., is given in the *Citizens League Bulletin* of that city for June 8, 1929, and in it the salary of the Director of Public Health is given as $9,000, the same as that of the Director of Public Works and the Director of Finance, and more than the salary of the head of the Fire Department, the Welfare Department, the Water Department, or the Personnel Department. Only the City Manager and the City Counselor receive more.

In contrast to these favorable symptoms is a recent statement by Dr. Shirley W. Wynne, Commissioner of Health of New York City, that doctors in the employ of that health department are paid less than plumbers and carpenters and only a little more than trench diggers and window cleaners. "The health department will regain its position of leadership," declared Dr. Wynne, "only when we begin to recognize the importance of the work which the doctors in the Health Department are called upon to perform," and he urged that they be paid at a rate commensurate with the value the city receives from such service.

Sanitary Real Estate Subdivisions

NO tract of land designed for residential purposes should be permitted to go on the market unless ample provision has been made for successful sewage disposal and for an adequate supply of water which is suitable for domestic purposes, according to Dr. Walter M. Dickie, State Director of Public Health of California, who contributes an article on "Real Estate Subdivision and the Public Health" to the California *Real Estate Magazine* for June, 1929, which is reprinted in the California *Weekly Health Bulletin*. Dr. Dickie contends that the ultimate success of any real estate venture depends to no small degree on the provisions for the development of sanitation upon the property.

Newspaper Appreciation of Health Work

A DECLINE in the number of infant deaths due to acute gastroenteritis from 55 in 1919 to only 2 in 1929 is a distinct achievement for a health department. Getting the local newspapers to recognize the fact and devote a column of valuable space to it is another. The Health Officer of Utica, N. Y., Dr. H. H. Shaw, and the Chief of his Bureau of Food Hygiene,* Dr. W. G. Hollingworth, have apparently accomplished both feats, however, for the Utica *Daily Press* for June 4, 1929, carries such a story, adorning it with pictures of these two officials.

Among the significant statements in this interesting newspaper article is one that the consumption of milk in Utica more than doubled between 1925 and 1928 while the infant deaths from gastroenteritis, usually due to contaminated milk supplies,

* Some of the activities of this Bureau were described by Dr. Hollingworth in THE AMERICAN CITY for February, 1929 (page 161).

Above: Coldwell "L-Twin." Capacity 4 to 6 acres a day. With gang units, as shown in picture, machine cuts 10 acres a day on one gallon of gasoline.

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ECONOMY!—an outstanding feature of the Coldwell Motor Lawn Mowers and Rollers. Low consumption of gasoline and oil, and dependable performance, insure exceptional operating economy and minimum service costs.

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SINCE 1867
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GASOLINE
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were reduced from 48 to 5. This result was brought about largely by increasing the amount of pasteurized milk, so that today 94 per cent of Utica's milk is rendered safe by this process. In 1925 there were only 7 pasteurization plants in the city, but today there are 36, according to the article.

Whenever the sanitary conditions of milk production have been improved and a city has been given a cleaner and safer supply of the most nearly perfect of all foods, it has invariably been the experience that there has resulted a great increase in the consumption of milk. This is one striking example of an instance where good health is also good business.

Safe and Sound Swimming

THIS is the season of year when the newspapers are full of accounts of drownings. Every week-end brings its toll of accidents to swimmers and boating enthusiasts, just as it also brings its legion of automobile accidents. Most of these tragedies are unnecessary and preventable.

Everyone should learn how to swim and should endeavor to become proficient in this desirable art, which is also one of the best forms of exercise, when indulged in in a moderate way. The swimmer, even the expert, should observe certain precautions, such as keeping out of the water immediately after meals, not remaining in the water for too long a period, and not attempting to swim farther than his physical condition and stamina will permit.

Persons with severe heart disease, epilepsy, and some other abnormal physical conditions should not endeavor to swim, unless allowed by their physicians, and then only when with companions able to assist them in case of trouble.

Swimmers should always try to select reasonably clean waters, free from pollution, for their swimming. It is the responsibility of municipal and other civic authorities to supervise all public bathing places and see to it that contamination is prevented.

In case of drowning, the victim should be revived by means of the Shafer prone pressure method, which is described in detail in literature obtainable from the American Red Cross, and the U. S. Public Health Service, both in Washington, D. C. This method is also shown with illustrations, in an article by C. P. Fordyce in *Hygeia* for July, 1929.

Dental Clinics for School Children

MORE than 600,000 children who are said to be unable to pay for private dental treatment will have their teeth cared for in New York City through the munificence of the Murry and Leonie Guggenheim Foundation, which has agreed to spend from three to four million dollars for dental clinics in Manhattan. "There is no other field in pediatric medicine in which more good can be accomplished," says the *New York Times* editorially in its issue of June 25, 1929, "and none so generally slighted," continues this editorial.

The need for dental care of school children is shown by the fact that from 75 to 90 per cent of all children are estimated to have dental defects. Dental care of a large part of the whole population, but especially school children, by means of clinics, is urged in a comprehensive article by L. I. Dublin and Dr. T. P. Hyatt in *Harper's Magazine* for May, 1929, and an article in *How to Live* for June, 1929, states that "an inferior state of nutrition of the teeth is practically universal."

The way to raise a good set of teeth has been outlined by the writer in an article in the *Country Gentleman* for July, 1929. The most important item is proper nutrition, but this adequate diet must begin with the expectant mother, whose daily fare must contain plenty of pure milk, leafy green vegetables, and the fruits which are abundantly supplied with the bone-building and tooth-constructing minerals, especially lime salts. This favorable diet must be continued in the nursing mother, and then the growing child must also be well nourished. Cod liver oil and sunlight in moderation likewise play their part in contributing to good bone and tooth formation.

If all mothers and young children were thus properly fed, tooth defects would be less widespread than they are. Since these troubles are so prevalent, however, adequate provision must be made for giving them attention, and already notable dental dispensaries have been established by the Forsyths in Boston, by George Eastman in Rochester, and by other public-spirited citizens in a number of cities. The Guggenheim plan will fill an important need in our largest city, and this is the type of philanthropy which is of real value to human welfare. Poor teeth in youth often result in distressing physical conditions in later life, conditions which can be prevented by the exercise of due care.

Roadside Stands and Health

DURING the touring season many persons stop at roadside stands for sustenance and refreshment. Sometimes they get disease as well, for many of these emporiums are conducted in an insanitary manner. In a recent survey of 98 of the 150 such stands in Monmouth County, New Jersey, reported by A. W. Sweet, Ph. D., in the *Public Health News* of that state for May-June, 1929, many violations of the State Sanitary Code were discovered.

This state and others are taking drastic steps to bring about sanitary conditions at these places. No matter how assiduous health authorities may be, however, it is the attitude of the public which will govern the success of such sanitary efforts. The people should be discriminating and shun all stands which are dirty, have poor methods of sewage and waste disposal, and exhibit a poor conception of sanitary housekeeping.

A number of states, including Pennsylvania, Ohio, Illinois, and Michigan, and probably others, are also taking steps to safeguard water-supplies along the highways within their borders.

2,300 Tons of Pollution Afloat in Manhattan Atmosphere

THE urgency of the widespread agitation for abatement of the smoke and dirt nuisance in the average urban community has just been strikingly emphasized by an investigation made for the Smoke Nuisance Abatement Committee of New York. It was found that approximately 2,300 tons of foreign matter float in the Manhattan atmosphere, and that it is composed largely of unconsumed carbon, ash, and bacteria and organic matter.

The investigation was made by Professor H. H. Sheldon, head of the Physics Department, with the cooperation of physicists of the Carrier Engineering Corporation, and their method of procedure was a unique departure from the previous methods employed, which seldom brought satisfactory results. Previously, the usual practice in such tests was to take samples of air at isolated places by means of vacuum bottles. Professor Sheldom used the dust and dirt captured by the air-conditioning systems in Broadway motion-picture theaters.

These systems, in addition to performing the usual ventilating function of drawing in and circulating air, wash and humidify—or dehumidify—it. In this process, which is accomplished with water sprays, 96 per cent of the dust, dirt and foreign particles in the atmosphere is precipitated and caught on the floors of the spray tanks.

By determining the number of cubic feet of air—341,000,000—passing through the tanks of one of the theaters and getting the number of cubic feet—11¼—of dust and dirt caught, it was possible to estimate that, for the city's entire atmosphere of one trillion cubic feet there were 35,160 cubic feet of foreign particles. The one trillion cubic feet of atmosphere is an etsimate made by the Brooklyn Polytechnic Institute based on the area of Manhattan and the air for 200 feet above the pavements.

Professor Sheldon analyzed the dirt samples and found that 65 per cent of these particles was unconsumed carbon—coal, gasoline and motor oil—15 per cent stone dust and mineral matter, including ashes, and 20 per cent germs, septic and organic matter. The unconsumed fuel alone would have been sufficient to run all of New York's electric light and power plants for six hours out of the twenty-four. The germs and bacteria proved on analysis to range from streptococci and diplococci to spirochaetae.

A similar test made with dust and dirt accumulated by the air-conditioning installation in the House of Representatives wing of the Capitol indicated that the atmosphere of Washington, which is reputed to be an exceptionally clean city, contains a total of about 90 tons of foreign matter.

SCHUYLER PATTERSON.

Master Construction Glass-Overs for Sludge Beds

Sewage Disposal Plant at Highland Park, Ill. It's a part of the chain of plants coming under the head of Chicago's North Shore Sanitary District

How Chicago's Residential Suburbs Solve Their Sewage Problems

THAT is to say, solve two of the most difficult of solution. That of suitable-sized locations at not too distant points. Likewise, the controlling of the odors. By glassing over the sludge bed, an increase from an average of 7 dryings a season to 20, is accomplished. This makes a reduction in size of beds possible.

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Prepared by
FRANK B. WILLIAMS
Author of "The Law of City Planning and Zoning"

ZONING and PLANNING NOTES

From Data collected by the Zoning Committee of New York (233 Broadway)

Excavation of Soil in Residential District for Removal and Sale

CALIFORNIA.—*People v. Hawley,* 272 Pac. 1076.—An ordinance prohibiting the carrying-on of excavating operations as a business, and the removal of the material for sale in residence districts established by zoning ordinance, held not arbitrary and unreasonable, the district being in fact residential in character.

6,000 Square Feet Per Family Restriction Held Valid

COLORADO.—*Spiegleman v. Denver,* District Court, reported in *Denver Post,* May 6, 1929.—Application to erect in a so-called Residence "A" or 6,000 square feet per family area district a seven-family apartment house on a lot having a total area of 11,812 square feet and a lot frontage of 94.5 feet. Under the ordinance an area of 42,000 square feet and a frontage of 125 feet would be required for such a building. The block in which the proposed apartment house was to be erected was improved with 17 single-family residences of high-class construction and 3 non-conforming apartment houses which had formerly been single-family houses and had been converted into apartments prior to the adoption of the ordinance. Adjacent to this Residence "A" district was a Residence "C" in 1,500 feet area zone. The application was denied by the Chief Building Inspector and was appealed to the Board of Adjustment for a variance. The application was denied. The applicants, instead of filing a petition to the Court for a writ of certiorari as provided in the charter and State Enabling Act, petitioned the Court for a writ of mandamus to compel the Chief Building Inspector to issue a permit. The writ was denied, and the ordinance held valid.

Reasonableness of Excluding Garages and Filling Stations

NEW YORK.—*McNulty and Carson, Inc. v. Murphy and Edinger,* as Committee of Buildings of Village of North Pelham, Supreme Court, Westchester County, May 22, 1929.—Proceeding for a writ of mandamus to compel respondents to issue a permit allowing petitioner to erect a garage within a residential district upon the ground that the zoning ordinance is unreasonable, unjust and confiscatory as applied to parcel No. 2 of the petitioner's property.

Held that there was no sufficient evidence to establish such unreasonableness. The petitioner purchased the property with full knowledge of the existence of the ordinance. The village is extremely small in area; generally speaking, it is residential in character. The street upon which the property is located is not the main street. Both sides of Fourth Avenue are included in the residential district and occupied by private dwellings, with two or three exceptions where the property was used for business prior to the enactment of the zoning ordinance.

NEW YORK.—*People ex rel. Just Estates and Scarsdale—White Plains Properties, Inc. v. Clarke et al.,* constituting the Board of Appeals of City of White Plains, Supreme Court, Westchester County, November 7, 1928; Appellate Division, May 6, 1929.

Review, in Supreme Court, of a decision denying a permit for the erection of a gasoline filling station.

The relator claimed that the ordinance stating that the Board of Appeals "may" authorize such a station in a business or commercial district should be interpreted as "must" in a proper case, and the Court held that this was not a correct interpretation of the word.

The granting of the permit was therefore discretionary with the Board. It denied its permission on the ground that there was no public necessity for the garage, and that traffic was very heavy at that point; and the Court held, under the circumstances—such as the growth of business and apartments in the vicinity—that the Board used its discretion unreasonably.

On appeal to the Appellate Division, the Court below was reversed, the upper Court holding that the discretion of the Board, in the absence of any discrimination, should not have been interfered with.

Mandamus Versus Certiorari as a Remedy

NEW YORK.—*Plummer v. McDermott,* Supreme Court, Kings County, reported in *New York Law Journal,* June 11, 1929. Application for mandamus to compel the Building Inspector to issue a permit for a new building to be erected on the site of a building employed for a non-conforming use prior to an amendment placing defendant's property in a residence district. Held that the proper remedy was an appeal to the discretion of the Board of Appeals; and, if unsuccessful, certiorari to review the decision of the Board.

Height of Tenement on Street Bordering Park

NEW YORK.—*Thorofare Development Corporation v. Deegan,* Supreme Court, New York County, reported in *New York Law Journal,* May 25, 1929. Petitioner seeks a peremptory order of mandamus directing the Tenement House Commissioner to approve plans for a building on property which is on Fifth Avenue, New York, where it borders Central Park. Fifth Avenue is 100 feet wide. The Tenement House Law provides that no tenement shall exceed a height equal to one and one-half times the width of the widest street upon which it fronts. The petitioner seeks to erect the building to a height, with setbacks, of 210 feet. He claims that the Tenement House Law should be interpreted in the light of a provision of the New York City Zoning Resolution stating that where a street borders a public place, public park or navigable body of water, the width of the street is the mean width of such street plus the width, measured at right angles to the street line, of such public place, public park or public water. Held that the provision in question in the tenement house law was not so affected by the zoning resolution; and that the width of the bordering part could not be added to the width of the street to increase the permissible height of the proposed tenement house.

Effect of Zoning Ordinances on Public Property

There seems to be much doubt in the minds of city officials and the public generally whether a city and county zoning ordinance governs and limits the location and construction of a building by the city or county, and the use by it of public land. The questions arising in this connection are:

Is it desirable that the public should be so limited in its action with regard to its own property?

Do the state enabling act and the local zoning ordinance provide for such limitation?

Is such a limitation constitutional?

The Corporation Counsel of Des Moines on May 16, 1929, gave a written opinion to the Board of Adjustment on the various phases of this question. Both the reasoning and the citation of decided cases on this question are given. He reaches the conclusion that in this case the city is subject to the zoning ordinance.

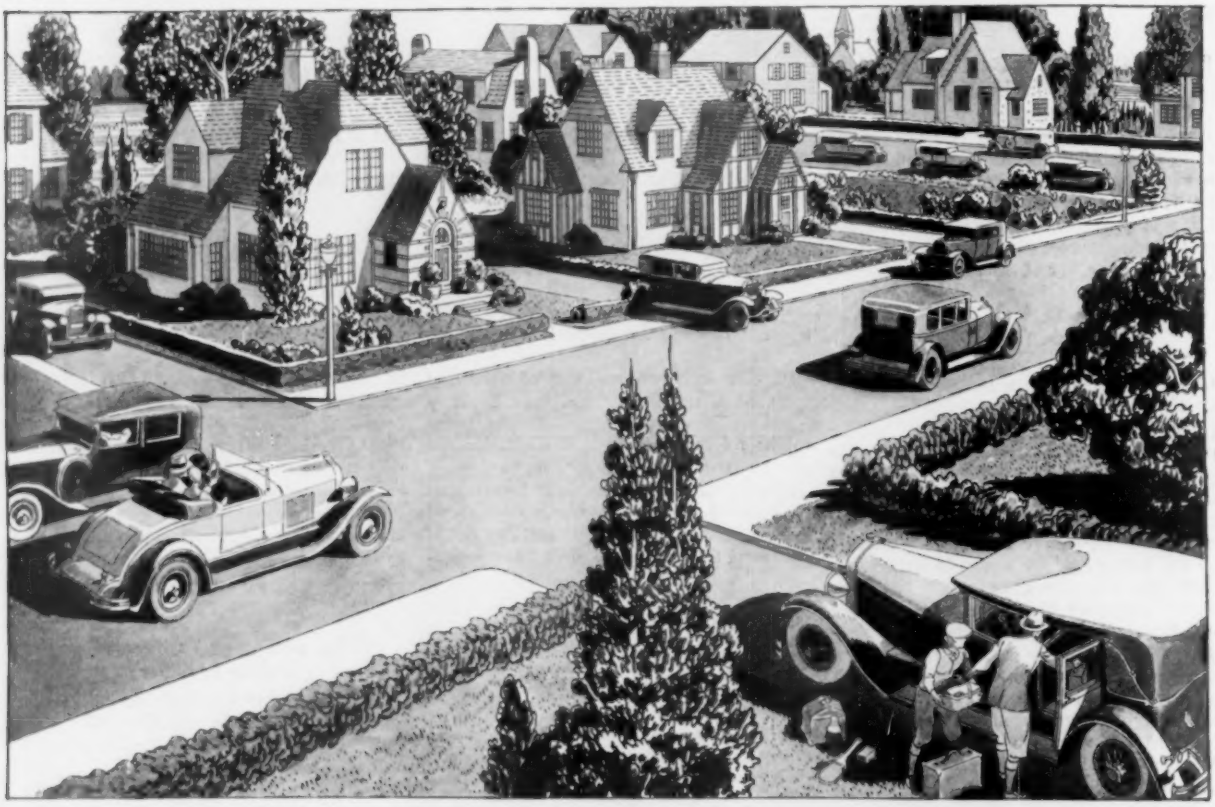
A Subdividers' Guide

The office of Los Angeles County, Calif., has issued an official Subdividers' Guide, prepared with more than usual fullness and care.

Private Restrictions

Private covenants in deeds accomplish much in real estate development which cannot be done by zoning under the police power, and the two methods of control may be combined. One of the most conspicuous examples of the use of private covenants is the development of Palos Verdes Estates, Calif.; and the pub-

Where's *everybody* going?



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lication by the Palos Verdes Homes Association of a pamphlet entitled "The Palos Verdes Protective Restrictions" is a district service to planning and real estate development in this country.

Housing in New York

The Report of the New York State Board of Housing for 1928[1] is admirable as a review of housing conditions in the state during the past year, and noteworthy as a recognition of the intimate practical relation of housing to zoning and planning. The report recommends changes in planning legislation, much of which has since become law.

Public Reservations in Massachusetts

In 1891 the Commonwealth of Massachusetts[2] established the Trustees of Public Reservations, having for its purpose the acquiring, holding and development for public enjoyment of beautiful and historic places and tracts of land within the state. The trustees have the power to accept gifts, to advocate policies with appropriate legislation, and to make and urge upon the State Legislature the adoption of plans for the acquisition of suitable land for such purposes by the state. The trustees have issued recently their thirty-eighth annual report, for the year 1928. Their advocacy of the acquisition of shore property is especially timely.

[1] Legislative Document (1929 No. 95.
[2] Acts 1891, Ch. 352.

Park Survey of California

The report of the California State Park Commission for 1929 is an account of a survey of the natural resources of the state of California which should inspire the authorities of other states in the union to do likewise. The survey was made by virtue of Statutes 1927, Chapter 764. It was in charge of Frederick Law Olmsted, who called to his aid nearly two hundred local assistants. Using this material, Mr. Olmsted has covered all phases of the subject. The title of this part of the report indicates its breadth. It is "Review of the Scenic and Recreational Resources of California and of Various means of Conserving and Utilizing them, of which means State Parks comprise only one."

It is only, however, by a careful reading of this unique report that any adequate idea of its scope and value can be obtained. For such reading and study it is sincerely recommended to public officials and the general public. It may be obtained from the State Park Commission, 650 Mills Building, San Francisco, Calif.

Plans and Studies, Washington and Vicinity

This report of the National Capital Park and Planning Commission is of permanent value. It contains photographs, tables, graphs and maps obtained by the Commission in its studies, too voluminous to include in its regular reports, and more appropriately united in a report of this character for preservation. Especially interesting are the plans of the city of Washington from its beginning to the present day.

Art Commission Provisions in Cities of 200,000 Population and Over

"IN any large city there are many public buildings, an increasing number of statues and other memorials, squares, parks, and boulevards and the ordinary streets with their street lamps, fountains and other utilities. For all of these the public requires that beauty of design and appropriate location be obtained, as well as the useful purposes which they are to serve. The appointment of an Art Commission to help in making the city better looking has, in consequence become a common practice."

So said the City Planning Section of the City Club of Portland, Ore., which recently acted as a committee to investigate the status of art commissions in cities of the same class as Portland, namely, cities of 200,000 population and over, and which has presented a complete report and recommendations to the club. "Organic civic character is not the result of chance growth," the report further says. And "When cities have reached substantial size, intelligent and experienced directors are necessary."

It was the Portland City Club that originally urged the creation of the Portland Art Commission. It has been felt that this Commission has accomplished little because it is vested with advisory powers only, the City Council being the court of last resort in all its decisions. It has been further felt that the continued existence of the Commission depends upon its being given full veto powers, and that to accomplish this end only a complete presentation of the situation to the appropriate officials and departments of the city is needed.

The committee's report is of more than ordinary interest, since it brings together a great deal of information on the organization and the administrative details of art commissions in the group of cities studied. It shows that 17 cities in the population group considered have art commissions, and that 13 of the 17 are vested with full veto powers. Four, including Portland, have advisory powers only. Three cities of over 200,000 population are without any art commissions. Two of the 22 cities selected for consideration failed to provide data. Further details are shown in the following table:

City	Has an Art Commission	Date of Organization	No. of Members	Term of Office	Advisory Power Only	Full Power to Accept and Reject
Baltimore	Yes	1898	8	....	....	Yes
Chicago	Yes	....	7	3 years	....	Yes
Cincinnati	....	....	....	....	....	....
Cleveland	Yes	....	18	2 years	....	Yes
Detroit	Yes	....	9	3 years	....	Yes
Indianapolis	....	....	....	....	....	....
Kansas City	Yes	....	9	3 years	....	Yes
Los Angeles	Yes	1924	5	....	....	Yes
Milwaukee	Yes	1911	7	4 years	....	Yes
Minneapolis	Yes	....	9	4 years	Yes	....
New Orleans	No	....	....	....	....	....
New York	Yes	1898	11	....	....	Yes
Oakland	No	....	....	....	....	....
Philadelphia	Yes	1919	9	....	....	Yes
Pittsburgh	Yes	1911	9	Dur. Adm.	....	Yes
Portland	Yes	1923	8	....	Yes	....
Rochester	Yes	....	5	....	....	Yes
St. Louis	Yes	....	9	3 years	....	Yes
St. Paul	....	....	....	....	....	....
Salt Lake	Yes	1927	13	Dur. Adm.	Yes	....
Seattle	Yes	1924	21	3 years	Yes	....
Washington	Yes	1910	7	4 years	....	Yes

Diversity of Functions and Financial Provisions

The report notes interesting diversities in the functions of the art commissions in the different cities. In Pittsburgh, the Assistant Secretary of Civil Service keeps in touch with events and conducts campaigns of public education. A standing committee of three architects and an architectural designer confer on plans for all proposed buildings. Chicago allows the purchase of sculpture, paintings, etc., if within the appropriation. If costing over $500 the consent of the Council must be obtained. Los Angeles allows for the purchase of some art objects.

General expenses vary. The Portland Commission requires about $25 annually. Milwaukee allows its Commission $100. Several cities allow for the hiring of clerks, draftsmen, engineers, etc., or allow the part time use of city employees. The expenses allowed the Art Commission of Pittsburgh over a period of three years was $5,100. During this time the Commission passed upon projects representing a valuation of $3,750,000, the Commission's cost being less than one-eighth of one per cent of the valuations represented. In Washington, Congress allowed $5,000 expense money, or enough to hold about six formal meetings. Fifty-six cases were disposed of, representing valuations of $6,345,000. In one year alone the New York City Commission passed upon 1,427 projects, and rejected 339.

The authority of art commissions over parks, bridges, art museums, public buildings, etc., is shown to be limited generally to an advisory nature. Violation of Art Commission rulings in Rochester, N. Y., brings a fine of $150 or 150 days in jail or both, with from $5 to $500 penalty to be recovered in civil action.

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Central mixing plant with 20-sack batch mixer. At the right is shown the application of the "Hunt Process" on hexagonal type pavements. Operator standing on seven-day-old concrete.

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THE CITY'S LEGAL RIGHTS AND DUTIES

Conducted by A. L. H. STREET, *Attorney at Law*

City Finance Commissioner's Bond Held to Cover Wrongful Approval of Payment of Bonds.—Bonds which had been surrendered and paid were removed from a city finance commissioner's office and on presentation to him were approved by him for second payment. Holding that the surety on his official bond was liable for the resulting loss to the city, the California District Court of Appeals said in the case of City of Fresno vs. Dillon, 273 Pac. 1106:

"There is no doubt . . . that it was the duty of the treasurer to pay these municipal bonds upon presentation without the approval, allowing, or drawing of a warrant by the commissioner of finance, and that it was no part of the official duty of the commissioner of finance to pay said bonds or authorize their payment. This does not, however, foreclose the inquiry in the present case, regarding the nature and extent of the official duties of the commissioner of finance."

Referring to certain sections of the Fresno charter, the opinion adds:

"A reading of these sections leads to the conclusion that it was the official duty of the commissioner generally to approve and issue warrants for the payment of authorized claims, and that it was likewise his official duty to withhold approval of and refrain from issuing warrants for the payment of unauthorized claims. The fact that it was not his official duty to pay or approve the payment of these municipal bonds in the first instance does not change the situation in the present case so far as the subsequent unauthorized approval is concerned. These bonds and a record of their approval were retained in Dillon's office. Dillon knew, and the records of his office disclosed, that these bonds had been covered by the warrant previously issued by him. When these bonds disappeared from the office and were presented with new demands shortly thereafter, his action in approving their payment a second time and issuing warrants therefor constituted the approval by Dillon of unauthorized demands against the city in violation of his official duty, for which he and his surety are liable on his official bond as provided in section 130 of the charter."

Statutory Notice of Damage Claim Against City Held Prerequisite to Suit.—Concerning the mandatory character of a statute or charter provision prohibiting suit against a city for injuries due to negligence of an officer or employee unless a verified statement of the claim was filed with the city within six months after the claim accrued, the Virginia Supreme Court of Appeals said in Jackson vs. City of Richmond, 146 S. E. 303:

"One sound rule formulated from the precedents and based upon the particular statute applicable is that the requirement of such notices is mandatory, and, under the Virginia statute, the action cannot be 'maintained' unless the notice so required is given within the time specified; but, nevertheless, while the giving of a sufficient notice is mandatory, there is nothing in the Virginia statute prescribing the precise form or exact contents of such a notice. It is therefore sufficient if it serves its purpose to give the city authorities information of 'the nature of the claim and of the time and place' of the injury—this so as to enable them to investigate the circumstances and aid in the defense of the city against improper claims. A substantial compliance with the statute is all that is necessary."

Indexes to Legal Decisions

The items appearing in this Department each month are classified by subjects in THE MUNICIPAL INDEX. The 1928 edition of the INDEX, on pages 110 to 115, covers the legal items published during 1924 to 1927 inclusive, and pages 94 to 97 of the 1929 INDEX list the items for last year.

Manner of Abating a Nuisance Held Discretionary with a Municipality.—Greater latitude is allowed municipalities in the matter of safeguarding the public health than in any other respect, held the Court of Common Pleas for Delaware County in the case of Prospect Park Borough vs. Kuppinger, 20 Municipal Law Reporter (Pa.), 75.

The Borough notified defendant to abate a nuisance consisting in an accumulation of a stagnant water on his premises. He failed to do it and the Borough constructed a drain to remove the water and to avoid further accumulations. A lien for the cost was filed against the premises, as permitted by statute. Refusing to vacate the lien, the Court remarked:

"If, therefore, the Borough has the right to remove nuisances, certainly we would naturally infer that, with the authority to prohibit nuisances, the Borough may provide the means of prohibiting a repetition of the same nuisance upon the same tract of ground as would naturally recur in this case, for simply draining the nuisance temporarily would only bring about a recurrence eventually—a continuing nuisance.

"The question herein in any event arises—was there more work done and were the costs greater than absolutely necessary to remove the nuisance as distinguished from the authority to prohibit the nuisance? If costs were incurred (exclusive or inclusive) also for prohibiting, has the borough the legal right to collect the lien herein either in whole or in part. . . .

"The preservation of the public health is uniformly recognized as one of the paramount objects of government, and a most important municipal function. The power to adopt and enforce sanitary regulations, to prevent the spreading of diseases and perfect healthful and sanitary conditions for the public, is inherent in a municipality. The law of overruling necessity is sometimes applied to the police power, and in no instance is it more aptly used than in the abatement of a nuisance which threatens to develop an infectious or contagious result. It has been held by courts of high repute that there is no limitation of legislation from enlarging the category of public nuisances, or declaring places or property used to the detriment of, or to the injury of the health, morals or welfare of the community as public nuisances, although not such at common law. Municipalities are allowed a greater degree of liberty in legislation in this direction than any other.

"We find ample legislative authority for the action of the claimant in the instant case in removing or abating this nuisance and we would go to great lengths to sustain the municipal authority unless there was a strong abuse of authority which would induce the court to interfere with its decision or its legal agent therefor, such as a board of health."

Temporary Obstruction of a Street in the Construction of a Viaduct Held Not Violative of Abutters' Rights.—Injunction against temporary obstruction of part of a street was denied by the Georgia Supreme Court in the case of Brown vs. City of Atlanta, 145 S. E. 855:

"The right temporarily to obstruct a street springs from reasonable necessity, and is limited by it, and those who exercise the right must so conduct themselves as to discommode others as little as is reasonably practicable, and remove the obstruction or impediment within a reasonable time, having regard to the necessities and circumstances of the case; and when they have done this, the law holds them harmless. . . . We think it has been uniformly held that a temporary obstruction in a street does not deprive the

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abutting owner of his property; and of course the word 'property' as here used includes any easement in the street for ingress and egress.

"If the building of a viaduct along a street made ingress and egress permanently less convenient, the result would be the same. It was so decided in a case arising out of the construction of the Forsyth Street viaduct: 'Though the erection of such a bridge may have rendered less convenient the means of ingress to and egress from an existing building upon an abutting lot, this was not a "taking" of property within the meaning of that clause of the constitution which declares that "Private property shall not be taken, or damaged, for public purposes, without just and adequate compensation being first paid.' . . .

"This ruling is well-nigh universal. The case of Sauer v. New York, 206 U. S. 536, 27 S. Ct. 686, 51 L. Ed. 1176, arose out of the construction of a viaduct and the claim of an owner of abutting property for damages. The Supreme Court said, in part: 'The state courts have uniformly held that the erection over a street of an elevated viaduct, intended for general public travel and not devoted to the exclusive use of a private transportation corporation, is a legitimate street improvement equivalent to a change of grade; and that, as in the case of a change of grade, an owner of land abutting on the street is not entitled to damages for the impairment of access to his land and the lessening of circulation of light and air over it.'"

Varying Width of Street Held Not to Defeat Front-Foot Assessment for Paving.—Under Mississippi statutes providing for levying street improvement assessments according to front footage, it is no objection to such assessments that the street improved varies in width, holds the Supreme Court of that state in the case of Moore vs. Board, etc., of the Town of Duck Hill, 119 So. 324.

Agricultural Land Held Subject to Assessment for Paving.—The mere fact that a tract of land has always been used for farming does not prevent its assessment for street paving, declared the Superior Court of Pennsylvania in the case of Montourisville Borough vs. Eck, 20 Mun. Law Rep. (Pa.) 108; 91 Pa. Super. 409.

The decisive question in the case was whether the land in question—a 200-foot strip forming part of a 217-acre farm—was urban or rural in character. Affirming a judgment based upon a jury's finding that the land was urban and therefore properly assessed, the Court observed:

"The propriety of making assessments according to the foot-front rule is dependent upon the character of the property which abuts upon the improvement, not upon that of land surrounding a village or town. The mere fact that the property of a defendant has been always used as farm land does not determine whether that property is rural or urban. There may be in a city a square or several acres of ground used for pasture or growing crops, yet if it is in the midst of a business part of the city, it would be treated as city property, liable to assessment according to the foot-front rule. 'In a large city there may be thriving villages or suburbs some distance from the main body of the city, with large farms intervening on both sides of the street. In such cases the villages or suburbs would be considered as city property and the farms as rural. . . . If the property on one side of the street be built up, or considerably built up, with residences, factories or other place of business, the vacant lots or farm land immediately across the street should as a general rule be considered city property. The owner on one side of the street may hold back until the land on the other side is divided into lots, sold and built upon, thus having his property greatly enhanced in value, and, if not liable to an assessment for the improvement of the street, he would derive an unjust advantage over the other property owners.' McKeesport v. Soles, 178 Pa. 366; Philadelphia v. Heyer, 81 Pa. Superior Ct. 243."

Ordinance Prohibiting Dance Halls Within 150 Feet of Dwelling-Houses Declared to Be Void.—In an opinion of the Texas Commission of Appeals approved by the Supreme Court of that State (Bielecki vs. City of Port Arthur, 12 S. W. 2d, 976), an ordinance of defendant city was held to be unconstitutional. The measure provided a heavy penalty for operating a dance hall within 150 feet of a dwelling-house, without regard to whether or not the place was operated as a nuisance. It also provided for summary abatement of such places. Reversing decisions of the trial court and of the Texas Court of Civil Appeals, the opinion taken by the Supreme Court says:

"It was clearly beyond the power of the city to enact this ordinance, even if authority to do so should be expressly granted by the charter.

"There is no statute in this state declaring public dance halls to be nuisances, nor were they such at common law. . . .

"A city cannot, by an arbitrary standard, declare that to be a nuisance which is not so in fact. . . .

"Even the Legislature itself cannot, by mere legislative fiat, destroy a citizen's property by declaring the use of same to be a nuisance, regardless of whether existent facts constitute it such. . . .

"The operation of a public dance hall not being a nuisance within itself or at common law, the owner of property using it for such purpose cannot be foreclosed of his right to a judicial determination, as to whether the same is so used as to render it a nuisance. . . .

"Under the terms of this ordinance, property could be summarily destroyed, although it was not in fact a nuisance. A citizen, by constitutional guaranty, is protected from the destruction of his property under such circumstances . . .

"Under the ordinance in question, mere proof that a public dance hall was located within 150 feet of a private residence was sufficient to authorize the summary destruction of plaintiff in error's property, notwithstanding the operation of such dance hall might be shown to have worked no discomfort or inconvenience to any person residing in the vicinity.

"A citizen has a lawful right to use his property for any purpose he may see fit, so long as such use does not operate to substantially injure the rights of others. A denial of the right of a citizen to so use his property is a deprivation of the property itself, hence falls within the protection afforded by the due process clauses of both state and federal constitutions."

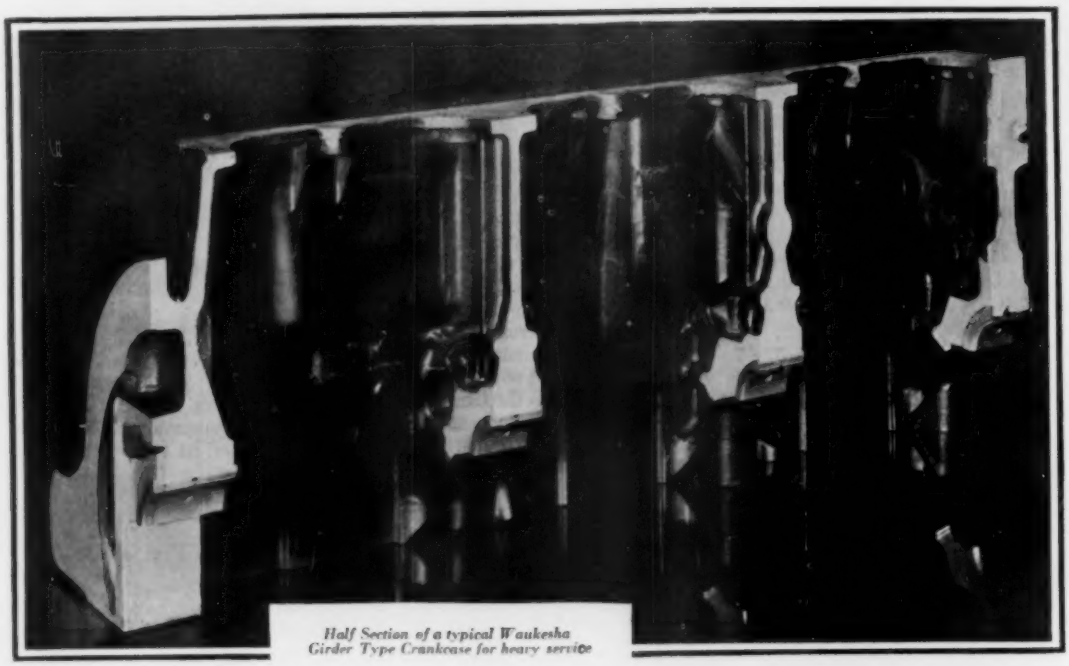
The Legality of Municipal Organization Held Not Subject to Collateral Attack in a Suit by Private Parties.—"The general rule is that 'where a municipal corporation is acting under color of law, and its existence is not questioned by the state, it cannot be collaterally drawn in question by private parties,'" declared the Montana Supreme Court in the case of Scilley vs. Red Lodge-Rosebud Irrigation District, 272 Pac. 543. "This rule is grounded upon public policy, and seems to be generally applied where the nature of the action sought to be prosecuted would necessarily result in the destruction of an entity which has, for a considerable period of time, dealt with the public generally and created rights and liabilities which, in justice and good conscience, cannot be evaded."

Property Owner Held Not Entitled to Damages Because Relocation of a Bridge Increased Distance of Travel to Nearby City.—An old toll-bridge between Schenectady and Scotia, N. Y., was taken over by the state and provision made for a new free bridge at a different location. This increased the distance that plaintiff was required to travel from his home in Scotia to Schenectady, and he filed claim against the state for damages. The claim was disallowed by the New York Court of Claims, which cited numerous precedents, and said, in part (Lange vs. State, 231 N. Y. Supp. 30):

"The claimant, at the time this bridge was closed, had no property right therein, nor did he have any franchise or vested right therein. He had the right, in common with the general public, to use said bridge as long as it was maintained for public travel . . .

"The state, in making this great public improvement, determined that public interests would be best served by locating the new bridge at a different place. No part of the property of claimant was taken or invaded by the construction of the new bridge, and no part of the old bridge, which was closed to traffic in December, 1925, was on claimant's property. . . .

"It must be borne in mind that in making this great public improvement the state had the absolute right to determine which route would best serve the public generally, and while the claimant may not be able to get from his place to the city of Schenectady as quickly by the new route and across the new bridge, that in itself affords him no claim against the state. In the absence of a statute making the state of New York liable for consequential damages, claimant cannot recover for these indirect damages."



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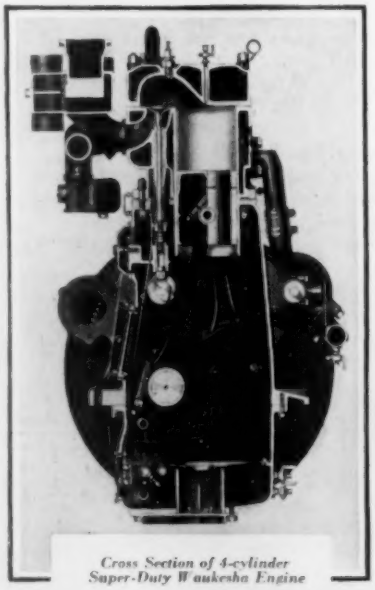

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WAUKESHA ENGINES

MUNICIPAL AND CIVIC PUBLICATIONS

Orders for books reviewed in this department will be filled promptly by THE AMERICAN CITY. Pamphlets, reports and all other publications should be ordered direct from addresses given. Prices do not include postage unless so stated.

Regional Survey of New York and Its Environs, Vol. VIII: Physical Conditions and Public Services.—Regional Plan of New York and Its Environs, New York, 1929. 210 pp. $3.00. Complete set of 8 Survey volumes, Plan volumes I and II, and Map of Graphic Plan for mounting, $65; on advance order, $50.

This final volume of the Regional Survey is in six parts, as follows: "Geography and Climate"; "Water Supply and Sewerage Problems"; "The Problem of Refuse Disposal and Oil Pollution"; "Power, Light, and Other Supply Devices"; "Distribution and Site Requirements of Hospitals and Prisons"; and "A Review of Earlier Planning Efforts." The text is interspersed with tables, maps and diagrams, and photographic illustrations throughout. Part VI, in addition to outlining early planning schemes for both city and region, traces the progress of planning efforts down to the present, with a final chapter which considers the future in the light of the past, and which reviews the Regional Survey as a whole.

The two Plan volumes are still to be published.

The West Sussex Coast and Downs—Report of the Arundel, Littlehampton, East Preston and District Joint Town Planning Advisory Committee.—Presented by Arthur H. Schofield, Town Planning Consultant. 1929. 148 pp. Illustrated. Apply to the Joint Honorary Secretaries of the Committee, Town Offices, Littlehampton, Sussex, England. 5 Shillings net.

There is something so approachable about this study that one misses the usual shrinking from the overwhelming task of the reviewer of regional plans. Its size is handy, its text clear and interesting, well classified and displayed; each of its maps and beautiful photographs tells a definite story; nothing tires or dismays the one who seeks to get the gist of the Committee's presentation. (1) A Survey of the Region, (2) Present Tendencies and Powers of Control, and (3) The Plan, are the divisions of the material, the third part presenting the application of the principles of zoning, the built areas, the unbuilt areas, extended engineering services in the region, and communications in the region; each of these chapters summarizing the principal recommendations regarding the features discussed. The zoning scheme for the region is, in effect, a number of compactly built areas in an open countryside; each with a score of public buildings, surrounded by those for social or business use; around this a ring of the more dense residences, enclosed by houses with larger garden spaces; and around all, a belt of playing fields, allotments and open spaces, the whole forming a definite planned urban growth.

Office Procedure for a Regional Planning Commission.—By Charles H. Diggs, Director Los Angeles County Regional Planning Commission. No matter whether the work is to deal with a small area or a large area, or be handled by one individual or a large staff, it will be necessary, if success is to be expected, to attend to certain requirements. The author has stated these requirements in the form of specifications. They are "those items which establish the confidence of the public and make it possible to build the plan that has been prepared.." 6 pp. multigraphed. (Apply to the Commission, Los Angeles, Calif.)

Salaries of Village Officials in Wisconsin, 1929.—Information Report No. 70 of the Municipal Information Bureau, University Extension Division, University of Wisconsin, Madison, Wis., is a new edition of a report which is compiled annually by Lorna L. Lewis. Salaries shown are those in force for 1929-30. 17 pp. multigraphed. 25 c. (Apply to the Bureau.)

Electrical Utilities: The Crisis in Public Control.—William E. Mosher, editor. Harper & Bros., New York. 1929. 355 pp. $4.00.

With the continual rapid increase in the use and importance of electricity in the home, factory and farm; the tremendous merger movement among electric corporations, accompanied by optimistic capitalization of expected advantages, the pyramiding of holding companies and their securities, and great activity in stock speculation; the partially successful assault, by financial and propagandist methods, upon municipal systems, competitive and otherwise; the increasing ineffectiveness of public regulation either of finances or rates; and the development of interstate activities without any adequate regulation, a gravely ominous situation has arisen, which is presented and discussed in this book in an unusually able and unbiased manner—unless it is bias to hold that a general policy of public control, accepted in principle by all sides, should really protect public interests. The book has been prepared under the auspices of the School of Citizenship and Public Affairs, of Syracuse University, of which school Dr. Mosher is the director; there are six co-authors with him.

In Part I are treated the interrelationships, in regard to control, between the utility companies and the public service commissions, the courts, the Federal Power Commission, and public opinion, together with other factors in the situation, particularly the holding company; and various cogent suggestions are made for making the present type of control more effective.

Part II considers various supplementary or alternative methods of control as possible aids in a solution of the difficulty: by contract, largely as a means of avoiding the vagaries of valuation in present rate-making doctrine; by public competition or example, particularly through generation of power at a few nationally-owned sites, and sale to companies or other agencies at wholesale, under contracts regulating ultimate rates; by a league of municipalities such as underlies the Ontario Hydro-Electric Power Commission; by a national planning commission such as has been put into effect in England; or by national ownership. In conclusion it is urged that a chance be given for some of the proposed remedies to demonstrate effectiveness, nothing more revolutionary being recommended meanwhile than that the public and private attitude regarding the industry be turned to acceptance of the ideal of bona fide public service.

Annual Report of the Hydro-Electric Power Commission of Ontario, 1928.—The 31st annual report of this outstanding public enterprise in the generation and transmission of electricity, for sale to municipalities for local distribution, covers the fiscal year ending October 31, 1928; it consists of 438 pages, including many diagrams, photographs and tables, with a large inserted map. After a 12-page letter of transmittal by Chairman McGrath, summarizing the report, the details of the latter are given under the headings: Legal Proceedings; Operation of the Systems; Municipal Work; Hydraulic and Electrical Engineering and Construction; Transmission, Distribution and Rural Systems; Laboratories; Electric Railways; Financial Statements re Hydro-Electric Power Commission; and Municipal Accounts. Street-lighting costs are included. (Apply to the Commission, Toronto, Ont.)

Annual Report, Winnipeg Hydro-Electric System, 1928.—This is the 17th annual report of the municipal hydro-electric undertaking of Winnipeg, Manitoba, and gives a brief account for the year 1928, with financial statements, including a table showing average revenue of 2½ per kwh. for domestic lighting, and less than ¼c for all sales. 20 pp. (Apply to the Manager.)

Recent Economic Changes in the United States.—Committee on Recent Economic Changes, of the President's Conference on Unemployment, and staff. McGraw-Hill Book Co., New York. 1929. 2 vols. XXXVI + 950 pp. $7.50.

After presenting the brief official report of the Committee, consisting of seventeen men of whom Herbert Hoover was Chairman and Edward Eyre Hunt Secretary, these volumes comprise the reports of the investigation made for the Committee under the auspices of the National Bureau of Economic Research. These are arranged under the headings of Consumption and the Standard of Living, Industry, Construction, Transportation, Marketing, Labor, Management, Agriculture, Price Movement, Money and Credit, Foreign Markets, and the National Income, by various specialists. The scope and importance of public works and public utility construction is incidentally discussed, as is also, in connection with the national standard of living, the matter of public expenditures for social services.

Highway Grade Separations.—How some communities are speeding up traffic and cutting down crossing accidents by thoughtful planning and building of highways, is illustrated and described in a 4-page pamphlet issued by the Portland Cement Association. Grade separation projects in Wayne County, Mich., Westchester County, N. Y., Cincinnati, Ohio, Camden and Harrison, N. J., St. Joseph, Mo., and Chicago, Ill., are illustrated. (Apply to nearest district office or to the Association's headquarters, 33 West Grand Avenue, Chicago, Ill.)

Three Years of Council-Manager Government for Kansas City, Mo.—*Public Affairs*, weekly issue of July 3, 1929, is a review of the first three years of the council-manager plan in Kansas City. It records both successes and failures. The latter are shown to have been "failures of administration by officials elected to operate the city government. . . . No serious defects have appeared in the charter. . . . Responsibility for any shortcomings . . . is accepted by the dominant group in the council." 16 pp. (Apply to Kansas City Public Service Institute, 501 Orear-Leslie Bldg., Kansas City, Mo.)

National Society for Prevention of Blindness. The fourteenth annual report of this association shows record-breaking progress in blindness-prevention organization. The society now has behind it, in addition to special organizations, the medical profession, the field of education, organized labor, the safety movement, the profession of social work, federal, state, and local governmental officers, and groups of private citizens. Records of activities in behalf of babies, pre-school and school children, and industrial workers, are tremendous, as are the total accomplishments reported. (Apply to the Society, 370 Seventh Ave., New York.)

Administrative Organization of Ohio.—A chart, 18 by 24 inches, prepared for Governor Meyers Y. Cooper and Director of Finance Harry D. Silver, of Ohio, by Harvey Walker and associates, presents graphically the state's organization under the Administrative Code of 1921 as amended to July 1, 1929. (Apply to State Director of Finance, Columbus, Ohio.)

London and Home Counties Traffic Advisory Committee, Annual Report.—A 68-page booklet reporting on London traffic for the year ending September 30, 1928, with particular reference to the effect of previous recommendations of the Committee. An appendix gives summaries and details of street accident statistics. 65c. (Apply to British Library of Information, 5 East 45th Street, New York.)

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Better Street Traffic in San Antonio.—Consolidated Report of the San Antonio Traffic Survey, directed and published by the National Safety Council, 108 East Ohio Street, Chicago, Ill. 1929. 23 pp.

This report of the traffic survey made in San Antonio is of value to any city of similar size feeling the need of definite action in the local traffic field. The traffic plan adopted by the advisory committee for that city is outlined in the first portion of the report. Then comes a discussion of the problem and its solution, by the director of the survey, with enlightening photographs, charts and diagrams. A permanent traffic commission to coordinate the traffic activities of different departments and advise upon traffic questions is recommended, as are established taxicab stands, more rigid parking regulations and other improvements in equipment and methods.

Are Police Training Schools Worth While?—The Mayor's Conference of New York recently circularized mayors and police chiefs of cities and first-class villages within the state as to the benefits of the police training schools held during last winter. The opinions, presented in a 10-page multigraphed report, are unanimous in giving the highest endorsement to the schools and their effectiveness in increasing police efficiency. (Apply to , New York State Bureau of Municipal Information, State House, Albany, N. Y.)

Procedure for Conducting Short Courses for Firemen.—The National Fire Waste Council, the body of fire prevention experts affiliated with the United States Chamber of Commerce, has issued an 8-page pamphlet devoted to the work of its Fire Service Extension Committee and containing suggestions for procedure in inaugurating short courses for firemen. This Committee was appointed to organize an extension college for firemen in each state and, subsequently, schools for firemen in all towns within organized states. (Apply to T. F. Cuneen, Manager, Insurance Department, Chamber of Commerce of the United States, Washington, D. C.)

The Non-Partisan Ballot in Certain Pennsylvania Cities.—A thesis in government presented to the faculty of the graduate school of the University of Pennsylvania in partial fulfillment of the requirements for the degree of Doctor of Philosophy, by J. T. Salter. Published by the Transcript Press, 111 S. Peters Avenue, Norman, Okla. The subject "inextricably mixed with the present-day realities, wants, and attitudes in the municipal sphere of our political process," was selected by the author in the full knowledge that "there is no exact unit of measurement by which one can ascertain the degree of partisanship or non-partisanship at a given primary election" and that there is no instrument" that the social investigator can use to isolate and detect the precise number of partisan bacilli in a supposedly non-partisan administration." Such "quantitative investigations of live material," as he has undertaken he sees nevertheless, "as essential to progress in introducing the scientific method into politics." The actual workings of the non-partisan ballot in cities of the third class in Pennsylvania during the six years of its operation (1913-1919) have been studied minutely, and are contrasted with conditions during the following six years in which party ballots were employed. Public officials, some of which were active office-holders during part or all of both periods, and the newspapers, were the chief sources of study, and all data are taken from some of the 28 cities represented in the selected classification. 257 pp. $1.50. (Apply to the publisher.)

Council-Manager Facts, Norfolk, Va.—L. A. Vanderberry, Purchasing Agent and Secretary to the City Manager of Norfolk, in response to requests for information on the organization, finances, personnel, and results of the manager plan in his city where it has been in successful operation for over ten years, has prepared a compendium in which these details are shown. The author is a layman who appreciates the disadvantages as well as the advantages that must inhere in any system, and who deplores the fact that so much of the printed matter on the manager plan is "mere propaganda." 13 pp. (Apply to City Manager's office.)

Society and Its Problems; An Introduction to the Principles of Sociology.—By Grove Samuel Dow, Associate Professor of Sociology, West Virginia University. Thomas Y. Crowell, New York. Revised edition, 1929. 707 pp. $3.00.

This is a revised edition of a book that has been used in hundreds of schools and has passed fourteen printings. Its aim is to give an introductory knowledge of the science of sociology, and it is written in such a lucid and entertaining way that it achieves the status of a work of general and popular interest. The author divides his subject into seven parts—a method whereby the reader is led from an exposition of the Nature of Sociology to a consideration of Social Forces, of Population, and the Evolution of Social Institutions. There follows an Analysis of Society, a chapter on Social Pathology, and an optimistic review of Social Progress brings the whole to a close.

A comprehensive view is given in this book of the present social development among civilized peoples. Professor Gow's treatment of capital and labor, the causes of poverty, and crime are notably clear, informing and unbiased.

Marriage and the State.—By Mary E. Richmond and Fred S. Hall. Russell Sage Foundation, 1929. 395 pp. $2.50.

The field work on which this volume is based was done in 96 cities and towns in 30 states selected as representative of differences in frontier beginnings, statutory provisions, climate and geographical conditions, industrial characteristics, and racial influences. By correspondence with 588 places that were not visited, much additional light was shed on local situations. The Introduction explains the method of work and gives a most interesting account of the origin of the marriage license system and how frontier conditions affected its development.

The material gathered is presented under the main divisions of "What Happens in License Offices"; "Some Social Aspects of Marriage" (youthful and child marriages, hasty, clandestine, and evasive out-of-state marriages); "The Marriage Ceremony" (various standards and practices); and "Supervision and Enorcement." The discussion is an enlivening presentation of matters fully recognized as extremely serious. One of the appendices gives blanks and record form suggested for use in carrying out various administrative procedures for the imaginary state of Columbia. A table gives a comparison of certain marriage requirements by states.

Marriage Laws and Decisions in the United States.—A Manual by Geoffrey May, LL.B. Russell Sage Foundation, New York. 1929. 477 pp. $3.50.

This Manual is a companion to "Marriage and the State." (See above.) Under the seven headings of The Marriage License, Solemnization, The Marriage Record, Other Requisites, State Supervision, Interstate Relations, and Sex Offenses and Marriage, it presents the statutory regulations of marriage, and the pertinent court decisions relating to marriage, in each of the 48 states and the District of Columbia. The Federal laws and decisions are also given, and a table shows the relationships within which a man is prohibited from marrying, in the different states. The Introduction explains clearly the differences between statutory law and common law and their application to this study of the requirements for the formation of the marriage contract and for its annulment when not properly entered into.

Economic Aspects of Forest Destruction in Northern Michigan.—Technical Bulletin No. 2 of the United States Department of Agriculture, dated January, 1929. The authors are William R. Sparhawk, Senior Forest Economist, and Warren D. Brush, Forest Examiner, Branch of Research, Forest Service. It constitutes a careful study of complete and partial forest destruction in this section and the present and future economic effects. The problem of idle land is discussed and a forest program for Michigan is suggested. The importance of forest fire prevention in this connection is stressed. 25c. (Apply to Government Printing Office, Washington, D. C.)

North Middlesex Regional Planning Scheme.—A Report Prepared for the North Middlesex Joint Town Planning Committee by Messrs. Adams, Thompson & Fry, Town Planning Consultants. 1928. 80 pp. 10 shillings, 6 pence.

This planning scheme for the North Middlesex region of Greater London, England, constitutes a well-illustrated and attractively prepared volume containing a large folding map upon which the various proposals are shown in color. Features of unusual interest are the sections of the report dealing with zoning, communications, open spaces, and the preservation of amenities. As far as possible, the future of North Middlesex has been visualized in relation to the development of North London as a whole, and the plan framed on that basis. In reviewing the present tendencies of development in the region, attention is directed to the manner in which London is spreading out and absorbing town after town on its outskirts; obliterating boundaries in a solid mass of buildings; pushing the open country farther and farther away from the densely populated areas; and swallowing up everything save a few small, isolated islands of open space that survive chiefly by chance. The report urges that, instead of continuing to expand as one gigantic unit, the future growth of London should take the form of a ring of satellite towns, dependent upon the parent city for the major cultural and commercial organization that is possible only in a metropolis. It is advocated that these towns be self-supporting otherwise and, separated from London and each other by a belt of open country, develop individual existences of their own in healthier and more spacious surroundings. Since the plan naturally discusses many of the general problems treated in the recently announced Regional Plan for Metropolitan New York, an excellent opportunity is afforded those interested to compare the methods of approach outlined in the two plans.

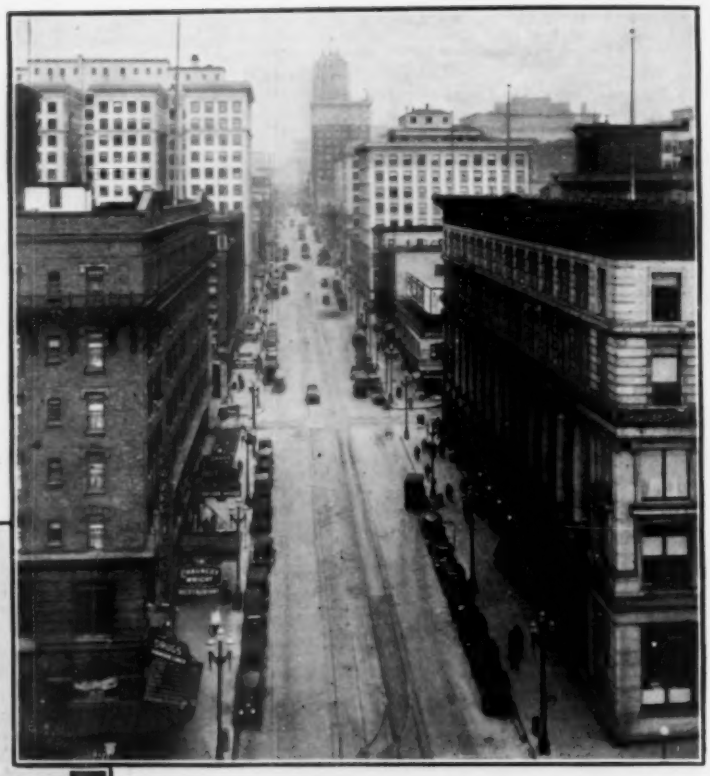
Modern Archery.—By Arthur W. Lambert, Jr., Champion, Mid-Western Archery Association of the United States, 1927. A. S. Barnes and Company, New York. 1929. 320 pp. $3.00.

Mr. Lambert has designed a textbook on the art of shooting for accuracy with the bow and arrow, and one that will be hailed for its timeliness and authenticity not only by the novice and the serious student of the sport, but by the director of public recreation programs. The book should, and doubtless will, contribute to a better general mastery of the principles underlying a popular and easily available pastime with its accounts of outstanding championship events; of the National Archery Association; of the conduct of tournaments; and of equipment. But it is somewhat more than a mere textbook, for the author has posed his practical everyday facts of markmanship, equipment, and organization against a background which his own interest has colored with some of the rich romantic and historic tradition of an art exercised immemorially in the dual interest of warfare and sport and persistently recurrent down the ages.

Adventuring for Health.—An attractive 32-page booklet telling in pictures, in words, and in statistics, the story of the Metropolitan Life Insurance Company's 20 years' experience in health education for policyholders. Twenty years ago no one knew what, if anything, an insurance company could do to lessen disease. The Metropolitan set out like a voyager on an uncharted sea, and has since made a long series of interesting discoveries. One of the most important of these is that the expectation of life among industrial policyholders has increased nearly ten years, as compared with an increase of a little over six years in the general population. (Apply to the company, 1 Madison Avenue, New York.)

The Importance of Regional Planning.—An address by J. H. Fairman, Manager, Southeastern Offices, Portland Cement Association, at the conference of the Florida League of Municipalities, June, 1929. It stresses the importance of competently controlled community growth and the necessity of citizen initiative in establishing such guidance. 16 pp. multigraphed. (Apply to Portland Cement Association, 33 W. Grand Ave., Chicago.)

New STREETS FOR OLD



Third Avenue, Seattle, Washington. Resurfaced with concrete in 1928. W. D. Barkhuff, City Engineer. J. L. Smith Construction Company, Contractors.

MANY cities are confronted with serious traffic problems in downtown business sections—yet find a street widening program impracticable. In such cases relief from congestion and a far smoother, speedier flow of traffic can be attained by repaving or resurfacing old streets with portland cement concrete.

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The Nurse in Public Health.—By Mary Beard, R. N. Harper & Brothers, New York. 1929. 217 pp. $3.50.

This book, the seventh in Harper's Public Health Series, is a study of modern public health nursing, written especially for administrators and instructors in that important profession. It discusses the present status of the visiting nurse, the scope of her duties, and the need for her education. It also devotes considerable space to public health nursing in Europe, as well as to maternal care in England and Denmark. The book, somewhat academic at times, is intended to supplement the excellent general treatise on public health nursing prepared several years ago by Mary S. Gardner. In that endeavor it succeeds admirably and it will be of interest and value to all those who are concerned with the theories and administration of public health nursing, now recognized as an essential factor in health work.

JAMES A. TOBEY.

Cincinnati's Savings and Accomplishments During 1928.—City Manager C. O. Sherrill, of Cincinnati, believing that the city administration should give to every resident the greatest possible service not inconsistent with the rights of others, has tabulated some of the services so rendered, as summarized from his annual report, and has brought the tabulation to the attention of practically every householder in the city by having it printed in folder form and enclosed in all water bills. (Apply to City Manager's Office.)

The Joint Bond Program: County, School District, City of Cincinnati.—In accordance with the procedure adopted by the Joint Bond Program Committee, a financial analysis is prepared by the Cincinnati Bureau of Government Research for the Committee's programming. The general purpose is to predict the normal and necessary expenditures of each governmental unit. The Cincinnati plan of programming bond procedure is in its third year. It has proved a useful instrument for sound financing of public improvements, and has not only won endorsement within its area of operation but has received the consideration of many other cities. The 1929 analysis is presented in 7 tables and 5 charts, with descriptive and explanatory text. It is Report No. 15. (Apply to the Bureau.)

Housing Policy of Frankfort-on-the-Main.—A lecture by Town Councillor May given at the Constituent Assembly of the International Housing Association, January, 1929, and issued as Publication 2 of the Association to its complete membership. In German, English, and French, elaborately illustrated with plans of new developments and buildings, and with photographs of exteriors and interiors of "model" houses. 40 pp. (For availability of publication and conditions of membership apply to the Association, Frankfort-on-the-Main, Germany.)

Specifications and Tolerances for Commercial Weighing and Measuring Devices.—Handbook M85, National Bureau of Standards, 1929, is the second of a series of three publications designed to replace the earlier volume, "Handbook No. 1, Manual of Inspection and Information for Weights and Measures Officials." Its chief object is to present in handy reference form specifications and tolerances recommended by the Bureau for the commercial weighing and measuring devices which are customarily examined by state and local officials. It also contains a section devoted to certain codes and specifications other than those adopted by the National Conference on Weights and Measures, and covering commercial weighing and measuring devices such as are regularly examined by only a few state and local officials. These, it is stated, are of secondary importance, since few regular officials have the equipment or personnel to apply them; but no handbook on specifications would be complete without them. A discussion by F. S. Holbrook, of the Bureau of Standards, on "the suitability of use of commercial weighing and measuring equipment" forms an important introductory section. 130 pp., buckram bound. 50c. (Apply to Government Printing Office, Washington, D. C.)

Accounting by Machine Methods.—By H. G. Schnackel and Henry C. Lang. The Ronald Press Co., New York. 1929. 563 pp. $7.50.

The spread of mechanical methods of accounting affects municipalities as well as commercial and industrial establishments; and a book devoted to an extensive description and discussion of such methods should be of much interest to accounting and auditing officers of cities and other governmental units. The one at hand describes the design and operation of modern mechanical devices and systems and is intended as a guide in installing them, including the necessary surveys upon which to base the proper selections. It represents a pioneer effort in scope, particularly from the professional accountant's approach. Many sample forms of machine records are shown, and a number of charts illustrative of procedure.

Music in Industry.—By Kenneth S. Clark. National Bureau for the Advancement of Music, 45 West 45th Street, New York. 1929. 385 pages, illustrated. $3.00.

Since the World War there has been no adequate information available as to the extent of musical organization among industrial workers. The present work, based upon a recent survey made by the National Bureau for the Advancement of Music, shows that there has been a steady development in this field ever since the depression of interest immediately following the War. Musical activities are maintained in 697 industrial and commercial establishments. There are recorded totals of 267 bands, 182 orchestras, and 176 choruses; and there are 133 plants where community singing is a regular feature and 273 plants where musical instruments are provided for employees. Mr. Clark cites testimony to show that benefits from musical organization are mutual.

Community aspects of such activities are briefly touched upon with suggestions as to what civic clubs, recreation departments and others may contribute.

Pushcart Markets in New York City.—By Harry Morton Goldberg, Researcher, East Side Chamber of Commerce. This is the first of a series of research studies into community problems to be printed in the *East Side Chamber News*, and reprinted in pamphlet form. It presents the interesting historic background, and the pertinent legal data bearing upon this anomalous institution, which persists even while public necessity is constantly narrowing the definition of what is the proper use of the highway, and while restrictions on parking and the regulation of traffic are growing more drastic. Effective control measures are suggested. (Apply to the Chamber, 26 Delancey St., New York.)

An Exhibition Book.—Special Demonstrations Illustrating Features of the Work in Physical Education in the Newark Public Schools. Assembled by Randall D. Warden, Director of Physical Education and Recreation, Newark. Revised and enlarged edition, 1929. Published by the A. S. Barnes Co., New York. The Newark work has attracted much attention, and the exhibitions have occasioned many requests for copies of the material for presentation elsewhere. This work was therefore prepared by the Department of Physical Education in its original form and met with so enthusiastic a reception that the new edition demanded has been enlarged to include additional dances, drills, pyramids, and tumbling arrangements. The 108 pages are divided into sections on: Free Exercises; Light Apparatus; Heavy Apparatus; Tumbling; and Dances. The latter includes "Gypsy Jubilee," "Clog Dance," "Medley Clog," "A Pantomime Jumping Rope Dance," "The Graduation Glide," and a Finale, "Maytime Assembly," including a group of numbers. Dot and line figures are effectively used to illustrate the "Pyramid and Plastic Poses" section. $1 from the publishers.

Work of the Municipal Reference Library, Chicago.—A 6-page typed report, dated June, 1929, constitutes a concise statement of the undertakings and achievements of the Chicago Municipal Reference Library for 1928, including the growth and use of the library, the scope and nature of requests, and studies made. Apply to Frederick Rex, Librarian, Room 1005, City Hall, Chicago, Ill.)

Directory of City Officials and Index to Kansas Cities.—The 1929 edition of this municipal directory appears as Bulletin No. 72 of the League of Kansas Municipalities under date of July 1. In addition to listing cities and giving the dates of their incorporation, their 1928 population, dates of council meetings, and lists and salaries of municipal officials, it presents a directory of public improvements. 110 pp., paper bound. $5. (Apply to League of Kansas Municipalities, Lawrence, Kans.)

Quality of Water of the Colorado River in 1926-1928.—Water-Supply Paper 636-A, United States Geological Survey, by C. S. Howard. A 14-page pamphlet, giving the results obtained in the continuation of a study of the Colorado River begun in 1925. Seven pages consist of analyses in tabular form. (Apply to the Survey, Washington, D. C.)

The Los Angeles Municipal Exhibit.—By Roy A. Knox, Director, Bureau of Budget and Efficiency, Los Angeles. In a 3-page article in the *National Municipal Review*, July, 1929, the author tells how the functions of his city were visualized for the citizens in an exhibition which remained in the corridors of the City Hall from April 8 to June 30. 50c. (Apply to National Municipal League, 261 Broadway, New York.)

Progress Toward Metropolitan Government in Cleveland and Cuyahoga County.—By Leyton E. Carter, Director, Cleveland Foundation. A 7-page article in the *National Municipal Review* for July, constituting a clear statement of Cleveland's metropolitan difficulties, and showing why the constitutional amendment designed to meet them failed. 50c. (Apply to *National Municipal Review*, 261 Broadway, New York.)

The George A. Posey Tube.—A 24-page booklet issued as a souvenir of the dedication and formal opening of the tube, or tunnel, connecting Alameda and Oakland, contains a history of attempts made since 1908 to accomplish the union of the two cities by an inner Bay route. Details of tunnel construction are given. Attractively illustrated. (Apply to Board of Supervisors, Alameda County, Alameda, Calif.)

County Chaos in the City of New York; or How a Big Ache Has Grown from a Little Corn.—"Here's a state of things . . . County government, a relic of antiquity, gathers dust among us. Other large cities have done this ancient tax-eater to death by unifying city and county government. Isn't it time New York woke up?" In an 8-page booklet, the New York City Club shows that it *is* time, and appends to the discussion a "Proposed Constitutional Amendment to bring the right to modify county government in Greater New York within the Home Rule Amendment to the Constitution." (Apply to the City Club of New York, 55 W. 44th St., New York.)

Black Horse of the Sea.—By Robert D. MacMillen. An interesting 40-page book, well illustrated with photographs of work handled by the Merritt-Chapman & Scott Corporation on port and harbor development, piers, bulkheads, sea-walls, bridges, boardwalks, waterfront protection, tunnels, dams, sewers, outfalls and intakes, subaqueous foundations, submarine cable and pipe-laying, and dredging and rock removal. The house flag of this company shows a runaway black horse on a white field, from which the book takes its name. (Apply to the company, 17 Battery Pl., New York.)

The Paul Laurence Dunbar Apartments and the Dunbar National Bank, of New York City.—A 12-page rotogravure pamphlet of this title contains articles and items reprinted from other sources, descriptive of two splendid institutions for Negroes founded in New York City by John D. Rockefeller, Jr. The cooperative apartment house which, with its interior courts, occupies a block, has proved successful even beyond expectations. The bank is a solid business enterprise. (Apply to Dunbar National Bank, 2824 Eighth Ave., New York.)

EIGHTEEN armored International Trucks, owned by Brink's Express Company, move the treasure of the newly consolidated Continental Illinois Bank and Trust Company across La Salle street. The delicate operation calls for a massing of armament, including a machine-gun car, 80 guards, 80 foot and mounted policemen, two squads of detectives, 80 bank policeman, and a detail of sharpshooters.

450 Internationals to Brink's —a wonderful story of *Co-operation*

A fleetof 450 trucks, touching nearly 600 cities—and Brink's do only the emergency servicing themselves. The main job is left to us—*International Harvester has service wherever Brink's have trucks.*

FORTY billions of dollars in money, valuables, and currency—a fabulous volume—traveled in International Trucks last year in the care of Brink's Express Company. Brink's every-day experience with their great fleet of Internationals—they have put 450 of them to work in the past eight years—is a striking example of the after-sale service on which International Truck success is based. *They had to have Internationals to do what they do.*

Brink's Express operates from coast to coast. It has branches in 42 of the largest cities and serves 576 other cities. *There* is a nation-wide service challenge and it presents no problem to International Harvester.

This Company, through its 152 Company-owned branches, assumes the responsibility of servicing the hundreds of Brink's Internationals. From routine greasing to mechanical maintenance we do the work, mainly at night and with no interruption to the regular schedules. Brink's are thus enabled to function reliably with a minimum investment in service facilities of their own.

Brink's are true to Internationals because International *trucks and service* are true to them. Owners everywhere report the same co-operation. You will find it the same.

International sizes range from ¾-ton to 5-ton. Ask the nearest branch for a demonstration of any model.

INTERNATIONAL HARVESTER COMPANY
of America
(Incorporated)
606 So. Michigan Ave. Chicago, Illinois

INTERNATIONAL TRUCKS

The Child, the Family, and the Court.—"A Study in the Administration of Justice in the Field of Domestic Relations." Part I, General Findings and Recommendations, by Bernard Flexner, Reuben Oppenheimer, and Katharine E. Lenroot. Bureau Publication No. 193, U. S. Department of Labor, Children's Bureau, Washington, D. C. Part II will describe the jurisdiction and organization of the courts included in this study. 87 pp. 15c. (Apply to Government Printing Office, Washington, D. C.)

Papers and Reports, National District Heating Association.—Advance publication, Book 2, of the Association's convention held at Detroit in June contains two papers: "City Building for the Future; Can It Be Forecasted," by J. Rowland Bibbins, consulting engineer; and "Application of a Building Construction Forecast to a District Heating System," by G. D. Winans (pp. 343-373 of complete papers). (Apply to Mr. Bibbins, 2301 Connecticut Ave., Washington, D. C.)

Other Reports Received

CHICAGO, ILL.—Rules and Regulations Governing Municipal Airports. 4 pp. Municipal Reference Library, City Hall, Chicago. 2c.

FREDERICTON, N. B.—Financial Statements, 1928. 26 pp.

OGDEN CITY, UTAH.—Auditor's Report, 1928. 28 pp.

WILMINGTON, N. C.—Annual Report, Bureau of Fire, Department of Public Safety, year ending December 1, 1928. 54 pp.

CONVENTIONS—WHEN AND WHERE

AUGUST 4-17.—EVANSTON, ILL.
National School for Commercial and Trade Organization Executives. Annual session. Secretary-Treasurer, John N. Van der Vries, 607 First National Bank Building, Chicago, Ill.

AUGUST 20-24.—BOSTON, MASS.
International Association of Municipal Electricians. Annual convention. Secretary, H. N. Lang, P. O. Box 1864, Orlando, Fla.

AUGUST 20-22.—FORT DODGE, IOWA.
League of Iowa Municipalities. Annual meeting. Secretary-Treasurer, Frank G. Pierce, Marshalltown, Iowa.

AUGUST 20-22.—ESCANABA, MICH.
Michigan Association of Chiefs of Police. Annual meeting. Secretary-Treasurer, Alfred Seymour, Chief of Police, Lansing, Mich.

AUGUST 20-22.—PICTOU, NOVA SCOTIA
Union of Nova Scotia Municipalities. Annual convention. Seretary, Arthur Roberts, K. C., Bridgewater, N. S.

AUGUST 28-30.—TORONTO, ONT.
Ontario Municipal Association. Convention. Secretary-Treasurer, H. L. Brittain, 21 King Street East, Toronto, Ont.

SEPTEMBER 12-22.—ROME, ITALY
International Federation for Housing and Town Planning. Congress. Organizing-Secretary, H. Chapman, 25 Bedford Row, London, W. C. 1, England.

SEPTEMBER 13-14.—PRICE, UTAH
State Municipal League of Utah. Annual convention. Secretary, William A. Fraser, 414 City and County Building, Salt Lake City, Utah.

SEPTEMBER 16-20.—NEW YORK-UP-HUDSON, N. Y.
Atlantic Deeper Waterways Association. Annual convention. Address the Association: Widener Building, Philadelphia, Pa.

SEPTEMBER 17-18.—KENOSHA, WIS.
American Water Works Association—Wisconsin Section. Annual convention. Secretary, L. A. Smith, Superintendent of Water-Works, City Hall, Madison, Wis.

SEPTEMBER 17-20.—PORTLAND, MAINE
New England Water Works Association. Annual convention. Secretary, Frank J. Gifford, 715 Tremont Temple, Boston, Mass.

SEPTEMBER 20-26.—TORONTO, ONT.
American Prison Association. Annual Congress. General Secretary, E. R. Cass, 135 East 15th Street, New York.

SEPTEMBER 23-26.—QUEBEC, P. Q.
American Association of Port Authorities. Annual convention. Secretary, Tiley S. McChesney, Room 200, New Orleans Court Building, New Orleans, La.

SEPTEMBER 24-27.—PHILADELPHIA, PA.
Illuminating Engineering Society. Annual convention. General Secretary, A. B. Oday, 29 West 39th Street, New York.

SEPTEMBER 26-27.—ATLANTIC CITY, N. J.
New Jersey State League of Municipalities. Convention. Executive Secretary, Sedley H. Phinney, 34 West State Street, Trenton, N. J.

SEPTEMBER 28-30.—MINNEAPOLIS, MINN.
Conference of State Sanitary Engineers. Annual meeting. Secretary-Treasurer, R. E. Tarbett, U. S. Public Health Service, Washington, D. C.

SEPTEMBER 29-OCTOBER 4.—SPRINGFIELD AND CHICAGO, ILL.
American Civic Association, Inc. Third traveling annual meeting. Executive Secretary, Miss Harlean James, 901-3 Union Trust Building, Washington, D. C.

SEPTEMBER 30-OCTOBER 5.—MINNEAPOLIS, MINN.
American Public Health Association. Annual meeting. Executive Secretary, Homer N. Calver, 370 Seventh Avenue, New York.

SEPTEMBER 30-OCTOBER 4.—CHICAGO, ILL.
National Safety Council. Annual Safety Congress. Managing Director, W. H. Cameron, 108 East Ohio Street, Chicago, Ill.

OCTOBER 1-2.—FITCHBURG, MASS.
Massachusetts Federation of Planning Boards. Annual conference. Secretary, Eleanor Manning, Lynn, Mass.

OCTOBER 1-2.—MORGANTOWN, W. VA.
West Virginia Municipal League. Convention. Executive Secretary, E. S. Maclin, West Virginia University, Morgantown, W. Va.

OCTOBER 2.—INDIANAPOLIS, IND.
Indiana Commercial Secretaries Association. Annual meeting. Secretary-Manager, Wm. H. Arnett, State Chamber of Commerce, Indianapolis.

OCTOBER 7-11.—OAKLAND, CALIF.
League of California Municipalities. Convention. Executive Secretary, William J. Locke, 707 Chancery Building, San Francisco, Calif.

OCTOBER 14-18.—PHILADELPHIA, PA.
American Society for Municipal Improvements. Annual convention. Address: E. A. Wood, City Engineer, Dallas, Texas (Chairman, Convention Arrangements Committee).

OCTOBER 14-16.—JACKSONVILLE, FLA.
International Association of Street Sanitation Officials. Annual convention. Secretary, A. M. Anderson, 100 North LaSalle Street, Chicago, Ill.

OCTOBER 14, WEEK OF.—QUEBEC, P. Q.
Municipal Securities Committee of the Investment Bankers Association of America. Annual convention. Chairman, Henry T. Ferriss, Care of First National Company, St. Louis, Mo.

OCTOBER 14-19.—LOUISVILLE, KY.
Playground and Recreation Association of America. Annual convention. Secretary, Howard S. Braucher, 315 Fourth Avenue, New York.

OCTOBER 14-17.—TULSA, OKLA.
Southwest Water Works Association. Annual convention. Secretary, Lewis A. Quigley, Fort Worth, Texas.

OCTOBER 15-16.—ALEXANDRIA, VA.
League of Virginia Municipalities. Annual convention. Executive Secretary, Morton L. Wallerstein, 408 Travelers Building, Richmond, Va.

OCTOBER 17-20.—AMES, IOWA
American Country Life Association. Conference. Executive Secretary, Benson Y. Landis, 105 East 22nd Street, New York.

OCTOBER 17-18.—MONTREAL, P. Q.
Canadian Tax Conference of the Citizen's Research Institute of Canada. Convention. Director, Horace L. Brittain, 21 King Street East, Toronto, Ont.

OCTOBER 17-18.—JACKSONVILLE, ILL.
Illinois Municipal League. Annual convention. Executive Secretary, A. D. McLarty, Urbana, Ill.

OCTOBER 20-23.—MILWAUKEE, WIS.
National Association of Commercial Organization Secretaries. Annual convention. Secretary-Treas., S. V. Saxby, Chamber of Commerce, Duluth, Minn.

OCTOBER 22-25.—BIRMINGHAM, ALA.
International Association of Fire Chiefs. Annual convention. Secretary, James J. Mulcahey, Fire Chief, Yonkers, N. Y.

OCTOBER 24-25—WASHINGTON, D. C.
American Road Builders' Association, City Officials' Division. Municipal Airport Conference. Secretary-Director, Chas. M. Upham, National Press Building, Washington, D. C.

OCTOBER 28-NOVEMBER 1.—WEST BADEN, IND.
Asphalt Association. Convention. General Manager, J. E. Pennybacker, 441 Lexington Avenue, New York.

NOVEMBER 5-9.—NEW ORLEANS, LA.
Girl Scouts, Inc. Annual meeting. Director, Mrs. Jane Deeter Rippin, 670 Lexington Ave., New York.

NOVEMBER 6-8.—SIOUX FALLS, S. DAK.
American Water Works Association—Missouri Valley Section. Annual meeting. Secretary, Earl L. Waterman, Room 104N Engineering Building, University of Iowa, Iowa City, Iowa.

NOVEMBER 12-15.—SAN ANTONIO, TEXAS
American Association of State Highway Officials. Annual convention. Executive Secretary, W. C. Markham, 1222 National Press Building, Washington, D. C.

NOVEMBER 12-14.—CHICAGO, ILL.
Governmental Research Association. Annual meeting. Secretary-Treasurer, Russell Forbes, 261 Broadway, New York.

NOVEMBER 12-14.—CHICAGO, ILL.
National Association of Civic Secretaries. Annual meeting. Secretary, Miss Harlean James, 905-907 Union Trust Building, Washington, D. C.

NOVEMBER 12-14.—CHICAGO, ILL.
National Municipal League. Annual convention Secretary, Russell Forbes, 261 Broadway, New York.

NOVEMBER 14-15.—OSHAWA, ONT.
Ontario Associated Boards of Trade and Chambers of Commerce. Annual meeting. Secretary-Treasurer, T. Marshall, Royal Bank Building, Toronto, Ont.

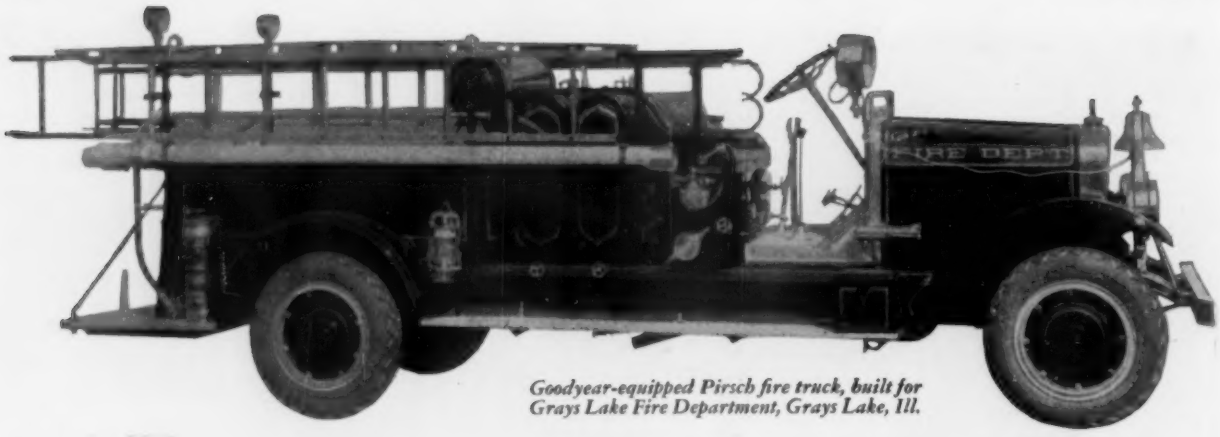
NOVEMBER 18-21.—MIAMI, FLA.
American Association of Zoological Parks and Aquariums. Annual meeting. Secretary, Will O. Doolittle, Box 422, Tulsa, Okla.

NOVEMBER 18-21.—MIAMI, FLA.
American Institute of Park Executives and American Park Society. Annual convention. Exec. Secretary, Wm. H. Walker, South Bend, Ind.

NOVEMBER 20-23.—FORT WORTH, TEXAS.
International City Managers' Association. Annual convention. Executive Secretary, Clarence E. Ridley, 923 East 60th Street, Chicago, Ill.

DECEMBER 12-13.—WASHINGTON, D. C.
Highway Research Board, National Research Council. Annual meeting. Director, Roy W. Crum, B and 21st Streets, Washington, D. C.

JANUARY 11-18.—ATLANTIC CITY, N. J.
American Road Builders' Association. Annual convention and Road Show. Secretary-Director, Charles M. Upham, National Press Building, Washington, D. C.



Goodyear-equipped Pirsch fire truck, built for Grays Lake Fire Department, Grays Lake, Ill.

100% Dependable . . . since 1922

Fire truck tires must be sure and they must be safe. Dependability and traction outrank every other consideration, when life and property depend upon ability to "get there."

"We have used Goodyear Tires on our apparatus since 1922 and still have the first time to experience any trouble whatsoever with them," says the letter from Glen C. Craft, secretary, Grays Lake Fire Department.

This dependability is a definite characteristic of every Goodyear Tire. Uniformity of manufacture is the starting point. SUPERTWIST, the famous Goodyear cord material, in the body of the tire assures greatly increased vitality and enduring resistance to fatigue.

Long economical wear, as well as powerfully gripping traction, are built into the All-Weather Tread. It grips and holds on any pavement, with its deep-grooved, sharp-edged blocks of heavy rubber.

* * *

For road and street maintenance, for street sprinkling, for garbage hauling, there are specific Goodyear Tires which accurately fit the hauling conditions. Your local Goodyear Truck Tire Service Station Dealer is equipped to give you expert recommendations, together with service which gets the fullest mileage out of every tire

More Tons Are Hauled on Goodyears
Than on any Other Tires

GOODYEAR

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NEWS AND ILLUSTRATIONS

Items *of* Interest *to* City, Town *and* County Officials, *and* Others Concerned *with the* Economical Construction *and* Efficient Operation *of* Public Improvement Undertakings

A New Deep-Well Turbine Pump

A new 6-inch and a new 8-inch deep-well turbine pump have been announced by the American Well Works, Aurora, Ill. These turbines have been built in response to a demand for a turbine to fit smaller bored walls. The deep-well turbine consists of the turbine head proper, which is the driving unit, the supporting pipe which encloses the driving shaft, and the turbine itself, which consists of the number of stages necessary for the specific requirements.

The turbine head consists of the vertical motor mounted on a rigid and compact base. The thrust bearing of the motor is designed to carry the line shaft and propellers. To the turbine head is attached the supporting pipe, to the lower end of which is attached the turbine proper. The turbine proper is a special style of the turbine type of centrifugal and is designed with the usual special American features.

THE NEW AMERICAN DEEP-WELL TURBINE FOR 6- AND 8-INCH BORED WELLS

All bearings are oil-lubricated by gravity feed from the surface, the gravity feed being electrically controlled. Provision is made for complete drainage of all waste oil and water leakage, and the discharge pipe is located above the floor level which permits of easy access.

A Device for Determining Free Chlorine in Water

A new piece of equipment, known as the LaMotte Chlorine Colorimeter, for determining free or residual chlorine in drinking water, has been developed by the LaMotte Chemical Products Co., Baltimore, Md. The set consists of eight permanent chlorine color standards in LaMotte sealed Nessler tubes with polished tops and bottoms, representing 0.02, 0.04, 0.06, 0.08, 0.10, 0.15, 0.20 and 0.30 parts per million of chlorine, respectively; three open Nessler tubes for the test sample; a 50-cubic-centimeter bottle of orthotolidine reagent with 0.5-cubic-centimeter pipette and nipple; and a LaMotte Colorimeter for Nessler tube comparison, all compactly arranged in a polished wooden case with a sturdy handle for carrying.

THE LA MOTTE CHLORINE COLORIMETER

Previously, great difficulty has been experienced with standards kept in open Nessler tubes, due to contamination from cork and rubber stoppers, and both contamination and loss of material if the solutions are kept in bottles and poured into the tubes when determinations are made. To eliminate these difficulties, all standards, including those for color, nitrogen, chlorine, iron nitrate, etc., are put up in closed Nessler tubes with polished tops and bottoms. The standard tubes are filled through side arms which are then sealed off, preserving the standards from contamination of any kind. The special Colorimeter must be used in making determinations with these sealed standards.

In making the determination, one of the open Nessler tubes is filled to the mark with the water to be tested, 0.5-cubic centimeter of the orthotolidine reagent added by means of the pipette, and the tube is shaken to insure thorough mixing and placed in the middle hole of the Colorimeter. Two consecutive color standards, for example, those representing 0.04 and 0.06 parts per million are then placed in the remaining two holes on either side of the test sample. The tops of the tubes are held toward a window or other source of daylight and the standards changed if necessary, until the color of the reflection of the test sample in the mirror either matches that of the reflection of one of the standards or lies between the two. If the exact match is obtained, the chlorine concentration in parts per million is read off directly from the standard with which the match is obtained. If the color lies between those of the standards on either side, the reading is taken as the average of the two. Thus, if it lies between 0.04 and 0.06, it is taken as 0.05 parts per million.

This set is also supplied with permanent standards and reagents for determining nitrogen, nitrates, nitrites, total iron, manganese, etc. The new principle of making determinations by matching the reflections in the mirror, instead of looking down through the tubes, makes the reading much more simple and accurate.

A New 2½-Gallon Hand Fire Extinguisher

A new model 2½-gallon fire extinguisher of the soda-acid type, designed especially for fire department service, has been announced by the American-LaFrance & Foamite Corporation, Elmira, N. Y. This extinguisher is known as the Rough Rider. It is splash-proof, easy to handle, easy to operate, and able to withstand rough usage.

The splash-proof feature of the Rough Rider has been provided for in two ways. The glass acid bottle is of the double-neck type which prevents the acid from coming out of the bottle until the extinguisher is tipped to an angle of over 45 degrees. The acid bottle is also provided with a heavy cup-shaped lead stopple which fits snugly over the top of the bottle and cannot be easily jolted off, but drops off the bottle when the extinguisher is inverted. As a further safeguard, the discharge on the inside of the extinguisher runs in a half-circle around the extinguisher shell.

This extinguisher is provided with heavy leather carrying straps, arranged so as to be easily slipped onto a fireman's back or over his shoulders and allow him free use of his hands when climbing a ladder. The Rough Rider is put into operation by merely inverting the device and controlling the stream with the nozzle, which is of the shut-off type to prevent wasting of chemical. There are no valves to open and it is not necessary to break the glass bottle to operate the extinguisher.

THE NEW ROUGH RIDER NON-SPLASH FIRE DEPARTMENT SODA-ACID FIRE EXTINGUISHER

FOR HAULING
on time any time at low cost every time—Dodge Trucks

For any hauling job, Dodge Trucks are safe, dependable workers. Grade or full loads, they pull with sureness. Open road or in the get-away, their speed and pick-up insure more miles, more trips, more material hauled.

On the cost sheets—of any owner they now serve—Dodge Trucks show records hard to better . . . . In operation and in upkeep, their cost is surprisingly low. Low first cost and long life add still more to their economy. Test Dodge Trucks with your needs in mind. Compare these rugged, modern workers with any other truck, no matter what its price. Go over the complete line with your Dodge Brothers Dealer. He can deliver the correct chassis, complete with the right body, ready for your service.

You can put a Dodge Truck to work on any hauling job with full assurance that it will save money on that job. Thousands and thousands of users of Dodge Trucks will tell you so.

PRICES

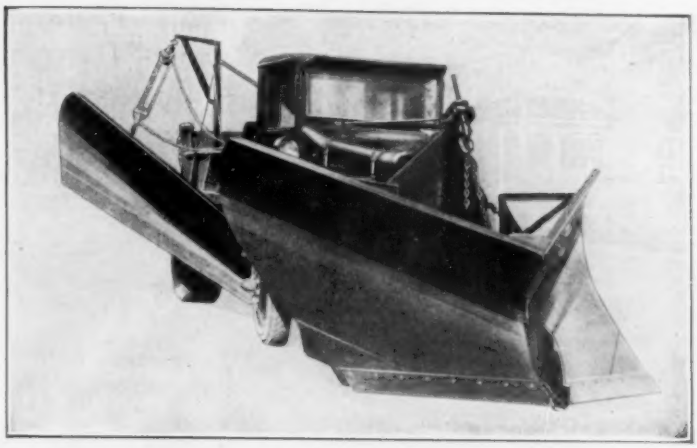
MERCHANTS EXPRESS—	
109" wheelbase (4-cyl.)	$ 545
COMMERCIAL TRUCK—	
120" wheelbase (6-cyl.)	775
1-TON—133" wheelbase (4-cyl.)	745
1-TON—133" wheelbase (6-cyl.)	845
1-TON—140" wheelbase (6-cyl.) Heavy Duty	1065
1½-TON—150" wheelbase (6-cyl.)	1345
1½-TON—165" wheelbase (6-cyl.)	1415
2-TON—150" wheelbase (6-cyl.)	1515
2-TON—165" wheelbase (6-cyl.)	1585
3-TON—135" wheelbase (6-cyl.)	1745
3-TON—165" wheelbase (6-cyl.)	1775
3-TON—185" wheelbase (6-cyl.)	1845

Chassis f. o. b. Detroit

DODGE BROTHERS TRUCKS

CHRYSLER MOTORS PRODUCT

SOLD BY DODGE BROTHERS DEALERS EVERYWHERE



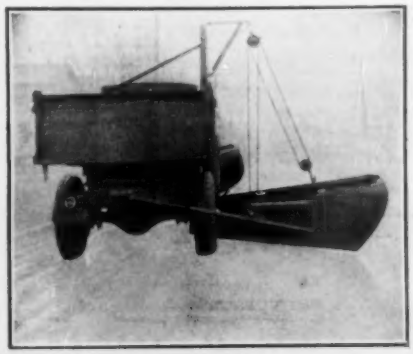
FRONT VIEW, SHOWING TYPE-S SNO-PLOW WITH LEVELING WING SET FOR BEVELING SIDE BANKS

A Snow-Plow with a Separate Leveling Wing

This is the time of year when cities, towns and counties are looking over their equipment to decide what must be added to keep streets and highways clear of snow during the coming winter. Frink Sno-Plows, made by Carl H. Frink, Clayton, Thousand Islands, N. Y., are designed to efficiently handle a depth of snow equal to the height of the moldboard at the nose, although they have been used satisfactorily to handle depths up to 10 feet. The moldboards spread to a width 2 to 3 feet wider than the blade, leaving a beveled bank instead of a perpendicular one.

Through the medium of the drive bars pivoted at the plow as well as to the chassis, the rear or heel of the plow can be tilted up or down to change the pitch of the blade as the conditions require. The blade is held in position by steady chains secured to either rear side of the plow and passing through grab-links secured to the lifting device. Chilled cast shoes about 12 inches long are secured to the bottom frame of the plow well toward the blade. These act as rockers when adjusting the heel, permitting the blade either to ride the road surface to scrape clean, or off the road 3 or 4 inches to leave that amount of snow for sleighing.

A push frame is secured to the front of the truck frame for pushing the plow, which is not pushed from the front axle. To this push frame is secured the lifting device which extends forward to a point directly over the center of the plow. A cold rolled screw grab hook is threaded to raise and lower through a bevel gear resting on a thrust ball bearing at the top outer end of the lifting device, thus insuring an easy lift. A pinion gear meshes with the bevel gear at right angles and is pinned to a rod which extends back into the cab, ending in a crank or wheel near the driver, permitting him to easily raise the blade of the plow 10 to 14 inches off the road. With the blade lifted in this manner, the truck may be driven at full speed from one job to the next. The lifting device does not interfere with the use of the truck for other purposes.



REAR VIEW, SHOWING ONE WING IN USE

The Frink leveling wing is used to trim off the tops of high banks, rolling the snow back to eliminate the canal effect of a cut which, if left as plowed, would easily fill with the first heavy wind. The wings are built of steel throughout, properly ribbed with angles and flats to give strength. A double-acting hinge unit secured to the truck frame just back of the cab permits raising and lowering or swinging in or out, neither operation interfering with the other. The same action applies at the rear end of the wing where automatic tripping tubular push braces are located. The weight of the wing is handled by a ½-ton hoist hooked to a standard on the side of the truck body. Usually but one wing is used with the plow, although the two may be used, if necessary. The wings will not jump out of a snowbank, but will keep the level at which they are set.

The new Type S Frink Sno-Plow is built with a slight shear to the cutting edge to prevent the snow from loading up on the moldboard when the plow is used at slow speeds. This plow is designed so that there is no perceptible side thrust even when using only one side of the plow.

Frink Sno-Plows are adaptable for use with any make of truck or tractor and successfully handle all conditions of snow, leaving a smooth, cleanly scraped surface for traffic.

Guarding the Atlantic City Auditorium Against Fire

The new Atlantic City Convention Hall and Municipal Auditorium, which is one of the largest buildings of its kind in the world, is equipped throughout with fire protection devices made by the American-LaFrance and Foamite Corporation, Utica, N. Y.

With the equipment, most of which was installed prior to the opening of the auditorium on May 31, the building and its contents are protected against practically any emergency which might be caused by fire. The Foamite devices, which include four 40-gallon engines, seven 5-gallon hand extinguishers, and 128 2½-gallon extinguishers, are capable of producing approximately 3,985 gallons of fire-smothering Firefoam. The building is also supplied with 32 soda and acid type hand extinguishers which have an aggregate capacity of 80 gallons of fluid. A total of 114 carbon tetrachloride Fire-Guns are also included, having a total capacity of 125½ quarts.

The auditorium is also equipped with ten Alfite carbon dioxide extinguishers and two 2-cylinder Alfite battery systems. Each cylinder contains 50 pounds of carbon dioxide gas which, when released in time of fire, expands about 450 times and lowers the oxygen content of the air to such an extent that combustion is impossible.

Parking and Street Signs

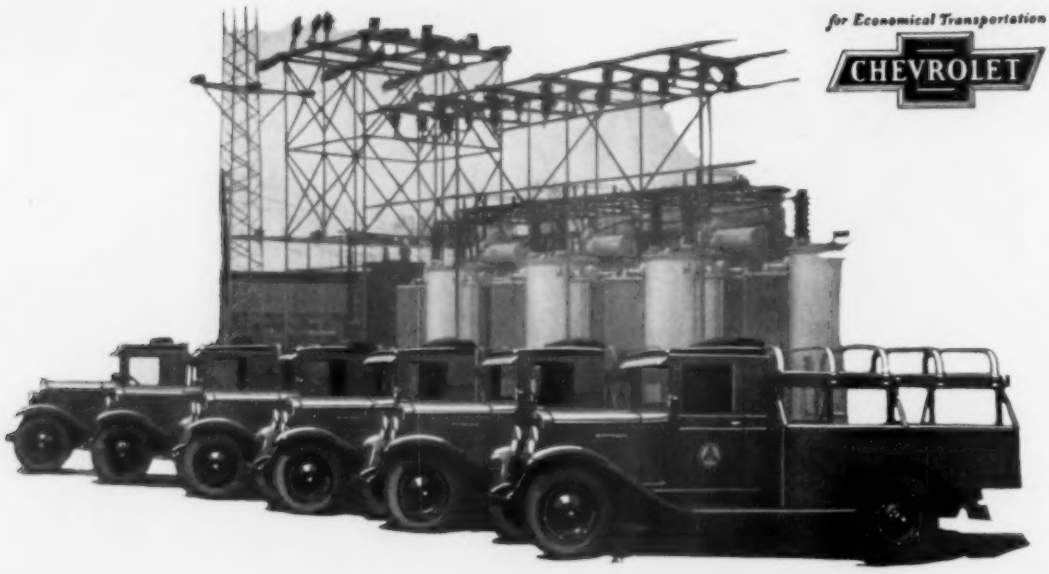
Parking signs made of face plates 11 inches in diameter with a total height of 3½ feet, which can be varied if considered desirable, and a 1-inch pipe standard and a 25-pound base, are made by the A. D. Joslin Manufacturing Co., Manistee, Mich. The parking sign unit weighs 35 pounds. If desired, special brackets for mounting the sign proper on telegraph or light poles can be secured from the company.

A TYPICAL TRAFFIC WARNING SIGN

The A. D. Joslin Manufacturing Co. also makes standard four-way street signs of brightly polished embossed letters on a genuine jet black DuPont Duco background, making a very legible combination. Two sizes of letters are available with these signs.

Yeomans Appoints Representative

Yeomans Brothers Co., Chicago, Ill., announce the appointment of the Ryan Sales Co., 1122 Stahlman Building, Nashville, Tenn., to represent them in that state east of the Tennessee River. They will handle the complete Yeomans line, which includes sewage ejectors, bilge pumps, water-supply pumps, general service pumps, condensation return pumps and rotary air-compressors.



for Economical Transportation

CHEVROLET

CHEVROLET *Six-Cylinder* TRUCKS

Six-Cylinder Performance Outstanding Economy & Exceptional Capacity - - at Amazing Low Prices!

Chevrolet Six-Cylinder Trucks have set a new standard for performance in the low-price field. The new six-cylinder valve-in-head motor is smooth, powerful and unusually flexible in traffic. The four-wheel brakes are quiet and positive. And steering is delightfully easy over any road.

Chevrolet Six-Cylinder Trucks provide gasoline mileage equal to that of their famous four-cylinder predecessors. Rugged construction in every unit gives them remarkable dependability. And unusual maintenance economy is assured by inexpensive nationwide service and extremely low-priced parts.

Chevrolet Six-Cylinder Trucks are built with an over-length, rigidly-braced, channel-steel frame. This makes possible the mounting of bodies of exceptionally large carrying capacity. And, whether the loads be of concentrated weight or of bulky materials, they are properly distributed and balanced.

But, most remarkable of all, these new Chevrolet Trucks *are actually available in the price range of the four!* And there is a Chevrolet body type designed to meet your individual requirements. See your Chevrolet dealer today—and arrange for a trial load demonstration.

CHEVROLET MOTOR COMPANY, DETROIT, MICHIGAN
Division of General Motors Corporation

Sedan Delivery ..... $595 Light Delivery Chassis ..... $400 1½ Ton Chassis ..... $545 1½ Ton Chassis with Cab $650

All prices f. o. b. factory, Flint, Michigan

A SIX IN THE PRICE RANGE OF THE FOUR!

AN INSTALLATION AT GOSHEN, MASS., LAST WINTER, SHOWING EFFECTIVENESS OF SNO-BAR FENCE

A New Type of Snow-Fence

A strong and durable snow-fence which is readily set up and is known as the Sno-Bar, is manufactured by George L. Barrus Co., Lithia, Mass. The Sno-Bar fence consists of hinged slotted steel arms set up as shown in the illustration with 14-foot lengths of 1 x 6-inch rough-sawed boards set into the self-locking slots. It can be set up readily over rough terrain, anchored with stakes driven through the base and readily dismantled in the spring. It is made in three heights, 4, 5 and 6 feet. It takes about 8 posts for 100 lineal feet of fence, and 309 board feet for this distance for a 5-foot fence. The ordinary 4-foot fence requires a storage space of 36 cubic feet without posts, while the 5-foot Sno-Bar stores in 25 cubic feet. The posts mesh together in less space and have no points or hooks to scratch or tear.

The initial cost of the Sno-Bar is higher than for the picket types of snow-fences, but, according to the manufacturer, the costs of the 5-foot Sno-Bar compared with the cost of the ordinary picket fence shows savings. The average total cost for 1,000 lineal feet of the 4-foot picket fence for a period of 20 years is computed as $980, and for the 5-foot picket fence $1,220. The 5-foot Sno-Bar for this same period costs $550.

A SNO-BAR FENCE, SHOWING CONSTRUCTION OF SLOTS IN THE STANDARD

A New Process of Concrete Pavement Construction

The Monolite process of concrete pavement construction, developed by the Monolite Co. of America, 1004 Hearst Building, San Francisco, Calif., consists in interposing between the concrete and the subgrade, previously prepared by smoothing and rolling, a waterproof course consisting of asphalt-treated felt in shingled layers bonded together by a paint coat of asphalt, tar or similar liquid. The objects of this process are to reproduce laboratory conditions in laying, with consequent increase in uniformity and strength; to avoid disturbance and change in the moisture conditions of the subgrade in the process of laying, with consequent change of volume by alternate swelling and drying; and to prevent the injurious action of alkaline and other salts in the soil on the bottom of the concrete pavement.

In laying pavement by the Monolite process, the grading should be done in such a manner as to obtain a maximum density in the upper foot of the finished subgrade, which should be practically dry. No sprinkling or watering should be done prior to placing the concrete slab.

On the subgrade prepared as above, an asphalt-saturated felt should be laid in strips, each strip overlapping the previous one by not less than one-half its width.

Before laying the second strip an adhesive waterproof paint should be applied to the first strip in such a manner that the second strip will adhere continuously to the one already in place.

In placing the concrete on this waterproof base, care should be taken to prevent the displacement or mutilation of the waterproof base, replacing any damaged portions.

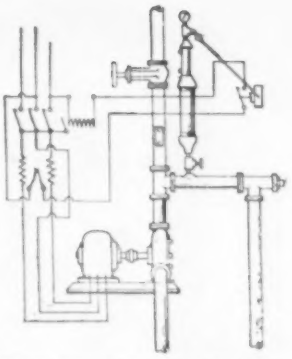
An Automatic Pressure Stabilizer for Water-Mains

An automatic pressure stabilizer for direct-pumped water-supplies which maintains any predetermined amount of water pressure from 1 to 200 pounds, has been tested and developed by the Elliott Manufacturing Co., Oklahoma City, Okla. This device cuts off the pump motors when the pressure reaches the maximum desired, and puts them on again when the pressure reaches the minimum. In its operation, the stabilizer eliminates the effect of water-hammer and line shock.

The stabilizer is simple in construction and weighs but 40 pounds. By the use of water against air and air against oil, the entire stabilizing effect is accomplished. Being automatic in operation, it requires practically no attention other than periodical inspection to see that the water pressure is within the proper limits. It also eliminates the need of installing a dead line.

There are many installations, especially in water-works plants, where there is a long discharge line and the friction head is greater than the maximum and minimum range in tank. In the past on such installations an automatic installation has never been satisfactory when using a pressure regulator at pump. A float switch could be installed, but the cost of installation would be greater, on account of running electric lines from the float switch to the motor, in many cases a distance of several miles. If a pressure regulator is installed at the pump, a dead line must be installed to operate on static head only from the tank. With the Elliott stabilizer, this is not necessary as it is used with a starter and pressure switch. It is particularly desirable when it is necessary that close range in tank levels be maintained.

The stabilizer has been tested over a period of several months by installations in the municipal water plants at Oklahoma City, Minco, Medford and other Oklahoma towns, and has functioned satisfactorily in every case. It has been the means of a considerable power saving and a reduction of labor costs in each instance.



SHOWING TYPICAL INSTALLATION OF ELLIOTT STABILIZER

EXTERIOR VIEW OF THE ELLIOTT STABILIZER

CUT-AWAY VIEW OF THE ELLIOTT STABILIZER

The WORK-TEST
is a sincere offer *to every* MUNICIPAL DEPARTMENT

WE offer your municipal department any General Motors Truck (whatever available model, chassis or body most closely meets your requirements). We furnish gasoline and a man to accompany your driver, without obligation to you.

Put the truck into your service. Find out whether it handles more work-per-day — *and how much more.* How much time it cuts off of any given haulage job. How it adds greater safety in all traffic. How your men like it. What its operating costs are— and how much it may save you there.

This test will give you accurate facts obtainable in no other way — facts instead of opinion or "hearsay." It is a modern safeguard to wise truck-investment.

Obviously only real value, real performance, make possible this unique offer — value and performance that are precisely what you would expect from trucks bearing this name.

Accept this sincere offer. Make the Test NOW.

PONTIAC-powered light duty equipment (7 types of different basic Straight Ratings; $625 to $1085).

BUICK-powered medium-, and heavier-duty (33 types of different basic Straight Ratings; $1395 to $3315).

BIG BRUTE-powered for heaviest duty (two types of 28,000 lbs. Straight Rating capacities $4250-$4350).

(Note: Above prices chassis only f.o.b. Pontiac, Michigan)

Pictured above are 6 PONTIAC-powered GENERAL MOTORS TRUCKS in the service of the CITY OF PITTSBURGH —which operates 32 GENERAL MOTORS TRUCKS

GENERAL MOTORS TRUCKS

GENERAL MOTORS TRUCK COMPANY, Pontiac, Michigan

Nation-wide service and sales-representation: Factory Branches, Distributors, and Dealers, in 1500 principal cities and towns

Time payments financed through Y. M. C. A. plan, at lowest available rates

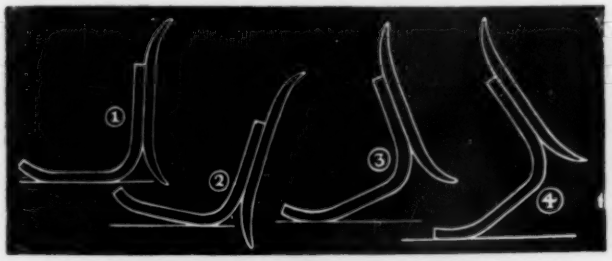
ALWAYS INVESTIGATE WHAT GENERAL MOTORS HAS BEFORE YOU BUY

A New Highway Maintainer

A new type of two-lever drag maintainer known as the General Planetainer, which combines the leveling principle of the drag with the cutting action of the road patrol or maintainer, has been developed by the General Wheelbarrow Co., 3140 East 65th Street, Cleveland, Ohio. In appearance the Planetainer resembles a two-lever drag, except in the front blade, which is a curved grader blade similar to that on a regular maintainer, to the back of which is attached a curved steel planing shoe that irons out the road. Figure 1 of the second illustration shows how the blade is set for planing or cutting at the grade line when the road is not filled with deep ruts. In this position the blade is carried on the shoe, holding it firm and eliminating chattering, resulting in an even cut and a smooth surface.

When the road is rutty and there is much material to be moved, the blade is set as in Figure 2. With the blade in this position, the dirt cut from the high spots is spread by the shoe to fill the ruts, the shoe also serving to break up clods.

For the last trip over the road or where smoothing only is necessary, the blade is adjusted to positions 3 or 4. In either of these positions, the clods are broken and the material spread and ironed out with the shoe.



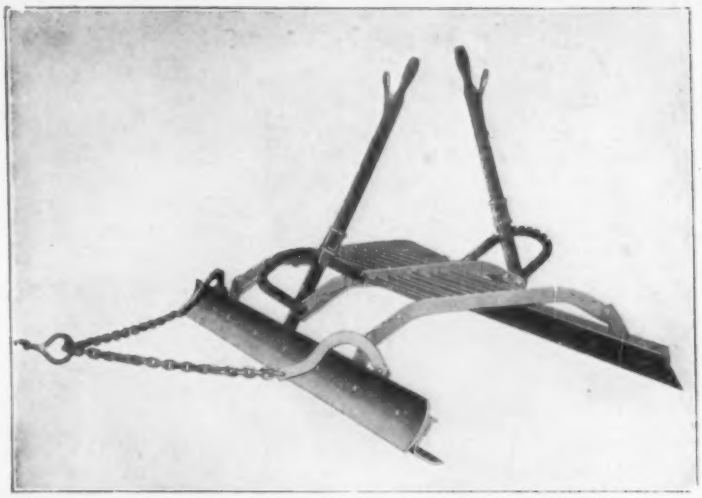
SHOWING HOW THE BLADE AND PLANING SHOE ARE SET TO PLANE, CUT OR IRON THE ROAD

If the road is hard or there is much material to be moved, the Planetainer may be weighted down or the operator may ride on the wide platform, the channel steel cross-bars providing a sure footing for him.

The Planetainer is rigidly and strongly constructed of heavy angle steel, and the frame is high-arched to clear dirt being turned up by the blade. The hitches are curved high over the blade and swiveled to adjust the machine for working at any angle. The blade is made of high-grade, special-analysis grader-blade steel 5/16-inch thick and curved to cut clean, while the shoe is made of ¼-inch steel plate bent to shape. The rear blade is made of ¼-inch flat steel. The blades, which are 7 feet long, are adjustable to eight positions by levers conveniently located for the operator. The rear blade offsets the forward by a foot, giving the machine an 8-foot cutting width.

For wide roads three Planetainers may be joined together, the two forward units being held apart by an adjustable angle steel strut bar, and the third unit fastened by short chains directly behind the gap between the two forward units. When joined in this manner, the Planetainers will work an 18-foot strip.

For narrower roads, the single or two-way Planetainer may be used, the single unit being drawn by a team, while the two- and three-way Planetainers require a tractor.



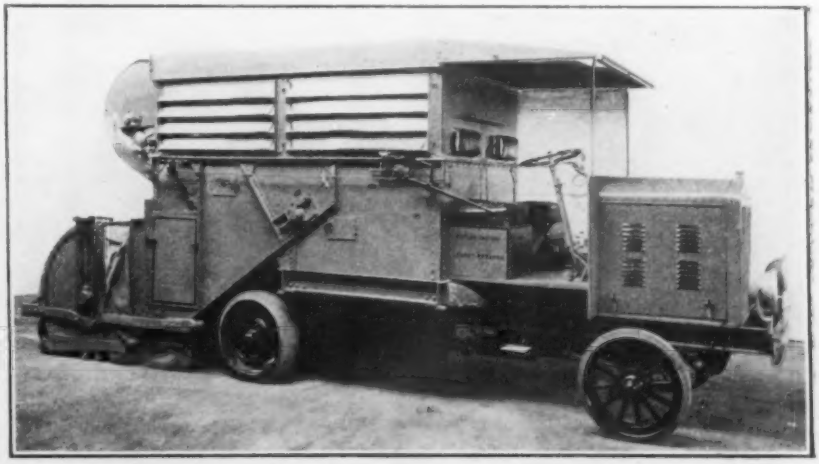
THE GENERAL PLANETAINER

Street Cleaning by the Vacuum Method

It is becoming more and more apparent that the measure of pride of people in their city is in proportion to the diligence with which they go about the work of keeping it clean. The fact that a clean city is a healthy city has long been recognized, and civic bodies as well as health authorities the world over are now engaged in what is almost a united effort to keep the streets of their cities clean.

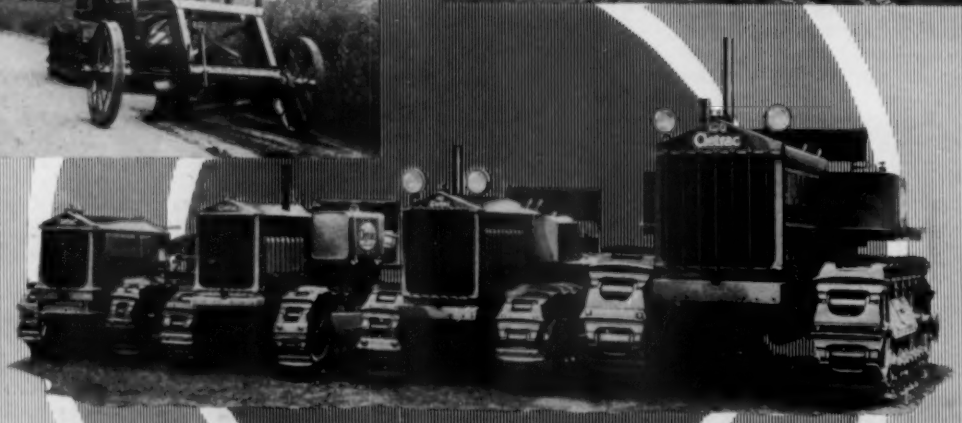
The improved Butler vacuum machine for cleaning streets, made by the Butler Manufacturing Co., 43 Exchange Place, New York, is reported to be in use in New York, Chicago, Cleveland, St. Louis, Detroit, Duquesne, Pa., Dayton, Ohio, Cleveland Heights, Ohio, Durham, N. C., Bayonne, N. J., Portland, Maine, Greeley, Colo., Irvington, N. J., Asbury Park, N. J., Houston, Texas, San Francisco and Oakland, Calif., as well as in Havana, Cuba, Brisbane, Australia, and Balboa, Spain.

According to the manufacturer, tests covering several years show that the vacuum street cleaner can cover an average area of 60,000 square yards per day. These figures were the result of tests in cities where heavy traffic prevailed, and they might be increased in less congested areas. According to the report, the cost of cleaning streets by the vacuum method varies from 16 cents to 26 cents per 1,000 square yards. A report from Greeley, Colo., states that the Butler sweeper there cleans 80,000 to 100,000 square yards of pavement daily at a cost of $17.45 per 8-hour shift, this figure including interest, depreciation, labor, gasoline, oil and materials.



THE LATEST MODEL OF THE BUTLER VACUUM STREET SWEEPER

CLETRAC
Crawler Tractors



Cletracs Fully Meet the Modern Needs of Industry

BIGGER implements—bigger loads—bigger schedules! All along the line the call today is for greater speed and greater output. More yards moved per hour, more miles covered per day; more work accomplished per dollar spent!

Cletrac Crawler Tractors perfectly meet these modern demands. Their advanced design, exceptional power and remarkable capacity make them the ideal power units for all the jobs of highway and general contracting work.

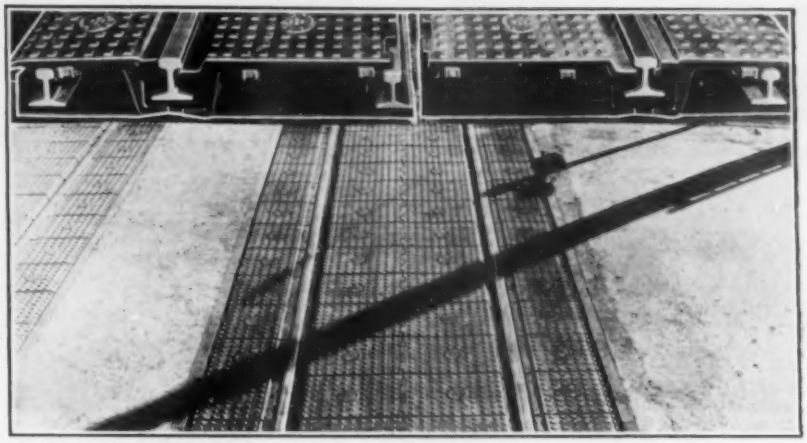
Built in a complete line of units from 20 h. p. to 100 h. p., Cletracs cover the entire range of power requirements. Write for literature.

The Cleveland Tractor Co.
19326 Euclid Avenue
CLEVELAND, OHIO

New Sundh Representatives

Gordon H. Gildersleeve, 439 Terminal Tower Building, Cleveland, Ohio, has been appointed by the Sundh Electric Co., Inc., Parkhurst Street at Avenue C, Newark, N. J., to represent the company in northern Ohio, in the place of Frank O. Wallene, who has left to devote his entire time to his engineering work.

The Sundh Co. has also announced that E. H. Bollenbacher, formerly with McClellan & Junkersfield, has been appointed its representative in the states of Georgia, Florida and South Carolina, with headquarters at 805 Forsyth Building, Atlanta, Ga. J. W. Eshelman, who formerly handled this territory, will remain in Birmingham, but will cover Alabama only.



A TYPICAL GRADE CROSSING PAVED WITH CUSHIONED BULLFROG PAVER UNITS

Airport Lighting Demonstration Truck

A specially equipped demonstration truck which was used at Ford Airport during the week of the Detroit Aircraft Show, is now on a tour of airports near New York City. Stops of several days are being made to demonstrate the airport lighting secured with the lighting system of the Pyle-National Co., 1334-1358 North Kostner Avenue, Chicago, Ill.

The large Diamond T truck has been equipped to permit the operation of all types of airport and aircraft lighting equipment. Electric power is generated by a Pyle-National Type O gas engine generator unit, delivering 3 kilowatts at 110 volts to the projector, boundary and obstacle light circuits. A motor generator set supplies the 12-volt circuits used for aircraft navigation lights, landing lights, etc., and is also used to charge the auxiliary batteries which are carried.

Two type 2375 floodlight projectors, one equipped for field floodlighting and the other for the directional beacon are carried. A platform has been built over the truck body at the rear, equipped with a davit for hoisting the large projectors and with mounting base so that projectors can be used at the customary elevated mounting height. Ceiling projectors, course light projector, and hangar floodlights are mounted on a shelf at one side of the truck.

All projectors are wired with flexible cable leads with Pyle-National attachment plugs, to be plugged into the receptacle fittings which are a part of the circuit wired in conduit on the roof of the truck body.

Also mounted on the inside of the truck roof is a complete layout of vaporproof lamp fittings, obstacle light, course light and boundary light fittings, controlled by Pyle-National heavy-duty switches.

On the roof of the truck are mounted a number of aircraft navigation lights, using a separate 12-volt circuit fed from the motor generator set, which is also used for two sizes of aircraft landing lights installed on the truck.

As set up for airport lighting demonstration, this equipment duplicates over a portion of the airport the distributed lighting developed by Pyle-National engineers which is distinguished by its uniform, glareless distribution and the absence of large shadows especially those cast by planes on the field.

Where Railway Paving and Thoroughfare Paving Meet

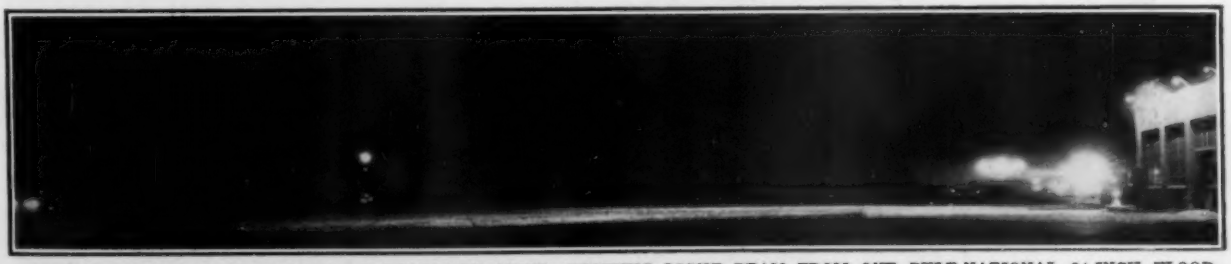
The distance between railroad gage lines has been standardized at 4 feet 8½ inches, from which is subtracted a uniform flangeway of 3 inches, leaving a universal width of 50½ inches, to cover which practically any known material can be used with more or less success. The best of crossings are neither smooth-riding nor efficient if the approaches are bad. The perfect pavement is a fixed and permanent pavement, while not only must railroad paving be removable, but its very foundation moves with track action.

The curb line or the point at which the public paving terminates should be level with the track rails, uniformly equidistant from the track rails, and the edge should be protected with a steel angle. So far there has been no uniformity either in the location or in the construction of this curb. If it is standardized, the various types of removable paving for railroad crossings could be standardized and be made in conformity. If the curb is substantially made, it affords a smooth approach withstanding highway traffic and also protects the railway paving. The railway paving is not on a fixed foundation and must be removable. Sectional paving can fill in the space between the outside of the railhead, and the fixed paving must have a slight clearance because of the movement of the paving which follows that of the track.

If the public paving is of concrete, it should be either originally constructed as above suggested or brought to these standards. If the paving is of brick or asphalt not self-contained, a separate curb should be constructed. In this case, it not only protects the public paving from disintegration at the tracks, but also separates the permanent from the portable paving.

The Indianapolis Switch & Frog Co., Springfield, Ohio, has developed the Bullfrog metal paving for grade crossings. These metal plates interlock when laid in position and interweave to make a symmetrical mat of paving of any length and with a permanent safety tread surface. Each plate is anchored upon and under the base of the rail through insulating blocks of resilient composition. The insulating blocks are contained in recesses within the two supporting legs, which extend downward below the base of the rail alongside and between the ties. The free ends of the plates rest upon stringer rails laid in the center of the track and outside each track rail. The stringer rails are old rails approximately one inch less in height than the running rail.

All units are of standard 20-inch width, but there are two separate plates, the ap-



NIGHT VIEW AT THE FORD AIRPORT, DEARBORN, MICH., SHOWING LIGHT BEAM FROM ONE PYLE-NATIONAL 24-INCH FLOODLIGHT PROJECTOR

44 *more* Highway Trailers *for* Cincinnati

8 in '27—10 in '28—and now 44 in '29—that's the way Cincinnati has bought Highway Trailers for its Waste Collection Department.

The first installation in 1927 was an experiment, a test of our claims of efficiency and economy. The proof was conclusive . . . the trailers cut costs and reduced collection complaints. The fleet of 10 bought in 1928 established a similar performance record. Now, convinced that Highway Trailers offer the only solution of its garbage collection problem, Cincinnati orders 44 more.

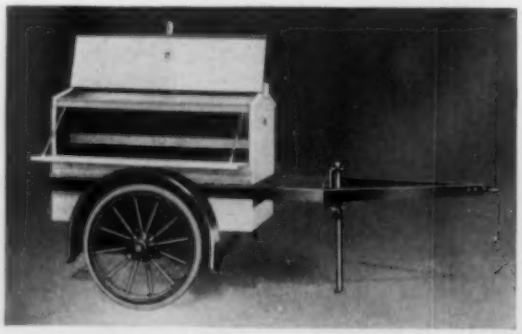
Colonel Sherrill, city manager, says that Highway Trailers have tremendously increased the efficiency of the department . . . lowered the cost and greatly improved the service.

In his annual report he said "Unit costs for the first 10 months of 1928 have been 69.9c per cubic yard as against 82.6c per cubic yard for the first 10 months of 1927."

City officials will be interested in data and literature concerning Highway Trailers success in Cincinnati and other cities. Write us for it.

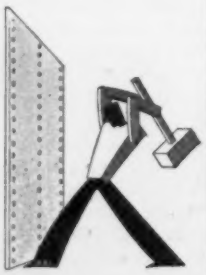
HIGHWAY TRAILER CO.
EDGERTON WISCONSIN

The Littleford Heavy-Duty ALL-STEEL Tool Box, 8 feet long, 45 inches wide, and 29 inches deep—made of 12-gauge steel, with heavily reinforced bottom.



The Littleford ALL-STEEL Utility Tool Box has forty cubic feet of storage space with properly arranged shelves for small, medium and large tools.

TOOL BOXES
With the Strength of ALL-STEEL CONSTRUCTION



Littleford ALL-STEEL Portable Tool Boxes require absolutely no maintenance under the hardest usage. They cost no more than any first-class wooden tool box and will last three to four times as long.

The boxes are water-tight and the ALL-STEEL Construction affords perfect protection for jack hammers, picks, shovels, drills, etc. Leave your tools at the job—they are safe in a Littleford ALL-STEEL Tool Box.

Write for complete descriptive literature and prices. You will be under no obligation.

LITTLEFORD BROS.
500 East Pearl Street, Cincinnati, Ohio

LITTLEFORD
ROAD & STREET MAINTENANCE EQUIPMENT

proach plate 20 inches long, and the middle plate, which is one-half of standard railway track gage, or 28 inches long. Each approach and each middle plate is identical in every way excepting that they are right and left to the extent that the interlocking lug is on one edge of the plate in the one instance and on the other edge in the other. This is for the purpose of laying the plate in the center of the highway to each side, leaving one-half of the highway undisturbed and open to traffic whenever the tie system of the railroad requires attention.

These units are self-adjusting to variations of track movement, expanding and contracting, and are always substantially level with the track, preserving an even surface requiring little attention or repairs.

A New Asphalt Planking

An asphalt planking, which is a block-like cellular asphaltic composition made of saturated felt, asbestos fiber and springy linear fiber together with a mineral aggregate and formed under pressure by extrusion, is manufactured by the Servicised Products Corporation, 53 West Jackson Boulevard, Chicago, Ill. This planking is suitable for use on bridges, viaducts, or approaches and may be laid under any climatic condition, is impervious to water, does not corrugate, is resilient at all temperatures, and is not slippery when wet.

It is fabricated in planks from ½ to 2½ inches thick, up to 12 inches wide and in lengths up to 10 feet. This Servicised planking can be applied to any suitable surface to which it can be secured and which furnishes the necessary support. When laid over a concrete deck or floor, the surface should be dried and cleaned, then a surface of hot asphalt applied. The plank should be laid down immediately in this hot asphalt, driven up tight, weighted down and allowed to set. The planking may be laid at right angles or at an angle of 45 degrees to the flow of traffic. All joints are sealed with hot asphalt.

When it is used over a wood deck or floor, a suitable asphalt-saturated felt is laid and mopped with asphalt. The planks are then placed and nailed down, the spikes driven ¼-inch below the plank surface. All spaces and cracks are filled with hot asphalt.

An Article on Chlorination

Wallace & Tiernan Co., Inc., Newark, N. J., has just mailed to all sanitary engineers, sewage plant operators and public health officials in the United States and Canada, a reprint of the article, "Advancements and Developments in Sewage Chlorination," by Linn H. Enslow, Research Engineer of the Chlorine Institute, 30 East 42nd Street, New York. This reprint is published in the standard 6 x 9 size used by Wallace & Tiernan and is an interesting document for all concerned in sewage chlorination.

A Compact Floodlighting Unit

For floodlighting fountains, monuments, public buildings, yards or other municipal uses, the Crouse-Hinds Co., Syracuse, N. Y., has recently brought out a new Type ADA floodlight. This unit is compact and easy to install. The light distribution can be varied from a narrow-beam spotlight to a wide-angle short-range floodlight, and the beam can be made either round or elliptical. Colors can be obtained with heat-resisting lenses.

The housing is made of special cast aluminum alloy, which is not affected by the action of salt atmosphere, is non-corrosive and requires no painting. The unit is non-ventilated, dust-tight and weatherproof. The reflector is of crystal glass in smooth or hammered surface. It has an adjustable mounting with swivel base. By removing the base casting, a slip-fitter base is obtained, which is designed to fit over a ¾-inch pipe. Two U-bolts are included with each floodlight so that it may be clamped on pipe from ¾ to 1¼ inches in diameter. The door frame is of the same special aluminum alloy as the housing, being clamped to the housing by a one-eighth turn, providing a dust-tight and weatherproof fit.

CROUSE - HINDS TYPE ADA FLOODLIGHT

Improved Water-Meter Testers

A slight change in the Clark meter-testing machine for testing the accuracy of water meters, has been made by the C. W. Clark Co., Mattoon, Ill.

The electric alarm bell which has been used to signal the closing of the test on water meters has been replaced by an electric buzzer. In several cases where the meter-testing machine was located near the telephone, it was difficult to distinguish between the bells. The electric buzzer is quite an aid in testing meters on small flows. In testing on a small flow or on quantity tests for accuracy, the operator may leave the machine and occupy himself with other duties. The electric buzzer calls the operator a few seconds before the close of the test.

Consulting Engineering Partnership Dissolved

Allen Hazen, Chester M. Everett and Malcolm Pirnie have announced the dissolution of the partnership of Hazen, Everett & Pirnie, consulting engineers, New York City. Mr. Hazen, Mr. Everett and Mr. Babbitt will continue the business of the firm at the present offices, 25 West 43rd Street, New York City. Mr. Pirnie is engaging in consulting practice under his own name, with offices at 25 West 43rd Street, New York. Charles F. Ruff, who has been Assistant Engineer with Hazen, Everett & Pirnie for 10 years, will be associated with Mr. Pirnie as Assistant Engineer.

New Water and Sewage Laboratories

M. P. Hatcher and Albert E. Pugh have announced the opening of the Water and Sewage Laboratories, at 1334 Oak Street, Kansas City, Mo., where they will conduct a general laboratory practice in water purification and sewage treatment. Their activities will include commercial analyses, industrial water and trade waste problems, and general supervision of water or sewage plant operation. M. P. Hatcher will continue as associate engineer with the Burns & McDonnell Engineering Co., of Kansas City, Mo.

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Yes—pipe as clogged as this is rare.

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NATIONAL WATER MAIN CLEANING CO.

Burt B. Hodgman, Chief Engineer

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Joint and unjoint easily and quickly—light weight—long runs easily made. No slack, but lend themselves to all practical bends. They cannot buckle or uncouple in the duct.

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